

A
M E D I C I N A L
D I C T I O N A R Y ;

I N C L U D I N G

P H Y S I C,		C H Y M I S T R Y,
S U R G E R Y,		A N D
A N A T O M Y,		B O T A N Y,

In all their B R A N C H E S relative to M E D I C I N E.

T O G E T H E R, W I T H A

H I S T O R Y *of* D R U G S ;

An A C C O U N T of their Various

P R E P A R A T I O N S, C O M B I N A T I O N S, and U S E S ;

A N D A N

I N T R O D U C T O R Y P R E F A C E,

Tracing the P R O G R E S S of P H Y S I C, and explaining the T H E O R I E S which
have principally prevail'd in all Ages of the World.

With C O P P E R P L A T E S.

By R. J A M E S, M. D.

V O L. I.

*The LORD hath created Medicines out of the Earth, and he that is wise will not
abhor them, Ecclesiasticus, Chap. xxxviii. Verse 4.*

Ἱπποκρῆς, τεχνέων μὲν πασῶν ἐστὶν ἐπιφανεστάτη.

HIPPOCRATES.

L O N D O N :

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M.DCC.XLIII.

T O

Dr. M E A D.

S I R,

TH A T the *Medicinal Dictionary* is dedicated to You, is to be imputed only to Your Reputation for superior Skill in those Sciences which I have endeavoured to explain and facilitate: And You are, therefore, to consider this Address, if it be agreeable to You, as one of the Rewards
of

of Merit; and if otherwise, as one of the Inconveniences of Eminence.

HOWEVER You shall receive it, my Design cannot be disappointed; because this public Appeal to Your Judgment will shew, that I do not found my Hopes of Approbation upon the Ignorance of my Readers; and that I fear His Censure least, whose Knowledge is most extensive.

I am,

S I R,

Your Most Obedient,

Humble Servant,

R. James.

P R E F A C E.

PROVIDENCE having, in the Beginning, furnished Mankind with a large Store of Remedies, in the Animal, Vegetable, and Mineral Kingdoms, their Uses and Application seem to have been originally discovered by Inspiration, or Accident; tho' Reason is not altogether to be denied her Share in the Improvement of this salutary Art. By Inspiration, I mean, first, that natural Instinct perceivable both in Man and Beast, which directs them frequently, when labouring under Distempers, to have recourse to what is salutary, and to avoid what is pernicious. This is more remarkable, at present, in the Brute Creation, than in Man; tho' the latter has some Reason to believe himself not excluded from this singular Protection of Providence, and would have more, if, like the former, we behaved, with respect to Aliment, Exercise, and all the Non-naturals, in a manner more conformable to the wise Institutions of the Creator.

In almost every Fever, we meet with Circumstances which evince the real Existence of this sort of Instinct in Man.

Thus, on the very first Attack, after the Stomach has discharged its Contents, which would otherwise increase the Disorder, and retard the Cure, by putrefying in the Body, all solid Aliment is nauseated; those Sorts particularly which are subject to an alkaline Putrefaction, and which would be most prejudicial; and nothing but cooling acescent Liquors are coveted, which afford the best Means of Relief. Add to this, that there is a Heaviness of the Head, and a general Inability to Motion: Now, it is well known, that muscular Motion greatly increases Fevers, and that Rest contributes to their Cure.

Secondly, I am inclined to believe, that many Medicinal Discoveries may have been brought about by Inspiration, that is, by the peculiar Direction of Providence, which are usually attributed to Accident; otherwise it should seem surprising, that after the Labours of a Multitude of Men, both of Learning and Abilities, who have spent their entire Lives in physical Researches, and after all the boasted Advantages of our Reason, we find, to the Mortification of human Wisdom, that the most important Remedies have been discovered by Savages and Madmen, whilst they had nothing less in View than the Improvement of Physic: By the latter I mean the Alchemists, who, in their Pursuits after the Transmutation of Metals, have blundered upon some Medicines of Efficacy. Thus, as we are told in Scripture, *God hath made foolish the Wisdom of this World*; thus *the Foolishness of God is wiser than Men*; and *the Weakness of God is stronger than Men*. Thus *God hath chosen the foolish Things of the World to confound the wise*; and *God hath chosen the weak Things of the World to confound the Things which are mighty*. And *the base Things of the World, and the Things which are despised, hath God chosen*; yea, and *the Things which are not, to bring to nought the Things that are*: ----- *That no Flesh should glory in his Presence*.

It is very possible, and even probable, that the Illiterate may have perceived a secret Impulse to apply unknown Simples to particular Disorders, without being able to give any Reason for their Conduct; and if these have been attended with Success, Reason has indicated their farther Use in similar Cases. It would, however, be difficult to determine how far Inspiration, or Accident, may have had a Share in particular Discoveries.

The Part which Reason has acted in the Invention of Remedies, and Improvement of Medicine, seems principally to consist in the following Particulars.

First, It was obvious enough to observe, that Distempers attended with particular Circumstances, which are now called Symptoms, were sometimes cured, without the Assistance of Art, by spontaneous Evacuations; such as Hæmorrhages, violent Diarrhœas, Vomitings, or Sweats; or by Tumors on some of the extreme Parts; and that, when these did not happen, the People thus affected usually died. Now, if we may presume, that the first Inhabitants of the Earth had Abilities equal to our own, they could not be long without trying, whether, in Cases attended with the like Circumstances, and where such Evacuations did not happen, artificial Evacuations might not produce the same salutary Effects; and the Means of procuring them were probably learned very early, either by observing the Operations of Simples on the Brute Creation, or on Man, when taken either out of Curiosity, Necessity, or Accident. Hence Bleeding, Purges, Vomits, and Sinapisms, or topical Remedies, applied with a View of inviting a Tumor into the extreme Parts, were, in all Probability, introduced: But Experience proved Reason defective in these very Instances, as it must have appeared upon repeated Trials, that these artificial Evacuations, tho' often salutary, were not universally attended with Success, but even sometimes proved manifestly injurious. On these Occasions, it was reasonable enough to suspect, that the Unsuccessfulness of these Evacuations depended upon their being procured unseasonably, or in a Degree disproportioned to the Exigencies of Nature. It must have, therefore, been some Time before Experiments could be collected, and compared together, sufficient to make it appear, that in acute Distempers there is a critical Time, when the vital Powers have prepared the Matter, which causes the Disease, for Expulsion; and that if the Evacuations, mentioned above, are procured at this fortunate Season, the Disease is carried off; whereas at another time they would be fatal, or at least prejudicial. It must, however, be confess'd, that since Intemperance and Idleness have introduced frequent Plethoras, that is, Fulnesses of Blood, these Evacuations have been rendered more universally necessary, under proper Restrictions, than they would have been in a natural and less corrupted State of Mankind.

I cannot forbear making an Observation, by the way, which naturally occurs from what has been said, which is, That as the Art of Physic has been already, it may also continue to be, greatly improved, by carefully remarking the Means which Nature, unassisted by Art, employs, in order to free the Constitution from Distempers; for hence many important Hints may be taken, for the Relief of other Patients under the same Circumstances, and for the general Advancement of true medicinal Knowledge. That *Hippocrates* was evidently of this Opinion, appears

appears to me from his *Epidemics*, particularly the first and third Books, which seem to be wrote principally with this View; for in these he acquaints us with the State and Constitution of the sick Person, the Circumstances as they appeared from time to time, and the Event, very seldom taking Notice of any Remedies being employ'd.

Secondly, Reason seems to have been concerned very early in the Invention and Improvement of Medicine, by applying, to the Distempers of Mankind, those Remedies which the Brute Creation was observed to employ, for Relief, under various Diseases. Thus Bleeding is said, by *Pliny*, to have been learned from the *Hippopotamus*, which used, when grown unwieldy, to come out of the Water upon the Banks of the *Nile*, and there open a Vein in the Leg with a pointed Reed, stopping up the Orifice, after sufficient Evacuation, with Mud. Thus, also, the *Ibis* is reported to have taught the *Egyptians* the Use of Clysters. And thus, according to *Herodotus* and *Pausanias*, *Melampus* discovered the purgative Quality of Hellebore, by observing, that his Goats always purged after browsing upon that Plant.

Other rational Methods of improving Physic were, the exposing sick People in the most public Places, that they might learn from others, who had been afflicted in the same manner, the Means whereby they were relieved, in order to employ those for the Relief of their own Disorders; and the registering particular Cases, and Remedies, in the Temples.

What Progress Physic had made before the Flood, is very difficult to determine with any Degree of Exactness; but as the Diet of the Antediluvians was very simple, the Necessity for Exercise great, and the Use of fermented Liquors unknown, it is more than probable, that Physic was very little necessary, and consequently not much cultivated; and that Intemperance, Idleness, and the Use of Wine, as they rendered the Art of Medicine of more Use, gradually gave Occasion for its Improvement.

As the Use of Wine, and Debauchery, with all their Consequences, began to prevail very soon after the Flood, Physic, as it should seem, began to be more cultivated, as more useful to Society. Thus far, however, is certain, that the Art of Medicine, like all other Sciences, flourished originally in the East, from whence it was imported into *Egypt*, from thence into *Greece*, and so into other Parts of the World: But the *Egyptians* have been so industrious in concealing their History under Allegories, that it is extremely difficult to extricate Truth out of a Multitude of Fables. It is generally agreed, that *Egypt* and *Africa* were peopled by *Cham*, the Son of *Noah*, who, without Doubt, made his Posterity acquainted with all the Sciences then known; and, amongst the rest, with all the medicinal Discoveries then made. His Son *Misraim* also has the Reputation of having propagated Arts amongst the *Egyptians*; but whether *Cham*, or *Misraim*, or either of them, was the famous *Zoroaster* of the *Persians*, it is not our present Business to inquire. It makes more to our Purpose, that these, and some of their early Posterity, were deified by their superstitious Countrymen, on account of their inventing, improving, and communicating Arts and Sciences to Mankind. Hence the fabulous Relations which we meet with of *Isis*, *Osiris*, *Hermes*, *Trismegistus*, *Horus*, who is the same as *Apollo*, and Son to *Isis*, *Thoth*, *Æsculapius*, and some others, who are said to be Inventors and Improvers of Physic. See *ÆSCULAPIUS*.

I cannot pass over this Period without remarking, how early the Effects of Fermentation were observed; for *Noah*, as we learn, was intoxicated with his own Wine: Now he cannot reasonably be supposed to have made Wine, without taking Notice of Fermentation; nor to have been drunk, without being sensible of its Effects. We may observe, how nearly the Circumstances attending Drunkenness, in the first Instance we have of it upon Record, resemble those with which it is attended at this Day. Thus *Noah*, we are told, was, by a too liberal Use of Wine, led into the Indecency of exposing his Nakedness to his youngest Son *Cham*; and that he awaked, as it should seem, in a very ill Humour, a thing not unusual in our Days, and cursed his Grandson *Canaan*, who had not offended him, for an Accident, which does not appear to have been any body's Fault but his own. It would have been happy for Mankind if his Conduct, on this Occasion, had given him the Hint to conceal his Discovery, if it was his, of Wine; for, by divulging it, he has not only cursed *Canaan*, but all Mankind. See *Genesis*, Cap. ix. Verse 20.

We have traced Physic into *Egypt*, where it undoubtedly received great Improvements. And here we have the first Instance of Physicians by Profession; for *Joseph*, who lived 1769 Years before *Christ*, as we are told in *Genesis*, Cap. 50. ordered the Physicians, his Servants, to embalm the Patriarch *Jacob*. The Word *רופאים*, which we translate *Physicians*, can mean nothing else; and therefore the Art of Embalming must in these Days have been exercised by the Physicians.

As for the ancient State of Physic among the *Egyptians*, *Clemens Alexandrinus* informs us, "That there were forty-two Books of *Hermes* of great Account, which contain all the Philosophy of the *Egyptians*: The six last are in a more particular manner studied by the *Pall* or *Cloak-bearers*, as relating to Medicine. These treat concerning the Construction of the Body, Diseases, Instruments, the Eyes; and, lastly, concerning the Disorders peculiar to Women."

As for the Condition and Character of Physicians at that Time among the *Egyptians*, it is plain, they were held a sacred Order of Men, as appears from the foregoing Passage of *Clemens Alexandrinus*, where their particular Office, in the sacred Processions, is specified. How great their Dignity, and how immense their Revenues were, we learn from *Diodorus Siculus*, who informs us, that the third Part of *Egypt* was allotted for the Priests, who, in these Days, were Physicians, that they might support themselves decently, and furnish what was necessary for performing the religious Ceremonies of the Country. This Dignity was hereditary, and handed down, without Interruption, from Father to Son. But it is highly probable, there were several Orders and Degrees of these Men, since to them belonged the Embalmers, of whom *Diodorus* affirms, that they received the Knowledge of their Art from their Ancestors; assuring us, at the same time, that the *Egyptians* held them in the greatest Esteem and Veneration, because they belonged to the Class of the Priests, and might, as such, have free Access to their most secret and retired Places. *Herodotus* gives us still a more full and circumstantiate Account of the State of the Physicians in *Egypt*, when he informs us, "That it was so divided, and, as it were, parcel'd out, that one Physician had the Charge of one Distemper, another of another; and that no one durst take upon him the Cure and Inspection of more." All *Egypt*, says he, is full of Physicians; some of whom practised on the Eyes, others on the Head, others on the Teeth, and others on the Belly; and that a different and distinct Set of Physicians had the Care of occult Diseases committed to them.

These Men practised gratis, since they had a Salary from the Public; at least, according to *Diodorus Siculus*, they did so during a State of War; and always afforded their Aid to Travellers of their own Country, without exacting a Fee. But the Embalmers were under different Regulations in the Exercise of their Art. The Physicians practised according to an authentic Record established by their Predecessors, who had been illustrious in their Professions: If, by following the Laws and Rules laid down in this sacred Code, they could not relieve and cure the Patient, they were not held criminal; but in case they attempted any thing not warranted thereby, if with-

out

out Success, it was a capital Crime. Great Improvements, therefore, were not to be expected, whilst this Law subsisted. *Aristotle*, in the second Chapter of the third Book of his *Politics*, informs us, that, after the fourth Day of the Disease, the Physician might begin to do something for the Relief of the Patient; but that if he attempted any thing before that Time, it was at his own Peril: But *Aristotle* treats this as an idle and pernicious Law, tho' others stand up in its Vindication. *Isocrates*, in his Encomium on *Busiris*, gives us the following succinct Account of the Medicine of the *Egyptians*: "The Priests, says he, who enjoy many Advantages, (*I suppose he means so many as to put them above the Necessity of considering themselves more than their Patients*) have, for the Relief of the Afflicted, invented a System of Physic, which does not prescribe dangerous Medicines; but such as may be used as safely as their daily Food: Hence it is, that the *Egyptians* are a People of sound and robust Constitutions, and live to a very great Age."

From what has been said, we may form a Judgment of the Dignity of the *Egyptian* Physicians, of the Manner in which they were so liberally provided for, and how their Practice was not so much directed by any real Judgment they themselves had in Physic, as according to a standard written Law; from which we may perhaps reasonably enough conclude, that their Theory was fixed; that the Memory had a greater Share in it than the Judgment; and that the Physician could not, with Impunity, go beyond the Bounds of the sacred Books. But, to be more particular, we shall take a View of the State and Condition of each Branch of Physic among them. As for their Physiology, then, it is obvious, that its Perfection must have borne a Proportion to the State of Anatomy; since it is principally to be learned from frequent and repeated Dissections of the human Body: What the State of their Anatomy was, may be seen under the Article ANATOMIA.

Diogenes Laertius informs us, that they believed Animal Bodies to consist of the four Elements, and quotes *Manetho* for his Authority. *Seneca* also assures us, that they divided the Elements into Male and Female. They, farther, attributed a great Influence to the heavenly Bodies over those of Men; and divided the human Body into thirty-six Parts, all which were consecrated to so many Gods or Demons, who were the Authors of Health or Disorders, in the respective Parts they had under their Patronage; for this Reason these Demons were by them worshipp'd and appeased by certain Incantations. They also thought these Demons might be reconciled to them by engraving their Hieroglyphics on Herbs and Stones. This seems to be the Basis, as it were, of Magic, and the main Hinge on which the Whole of it turns. The Doctrine of Climacteric Years, or what *Pliny* calls the *Scansilis Annorum Lex*, may possibly derive its Origin from the *Egyptians*; tho' others, with more Probability, deduce it from *Pythagoras*; and *Pliny* ascribes it to *Æsculapius*. All these Opinions may be right; for *Pythagoras* might, and probably did, borrow his Doctrine of Numbers from *Egypt*, or some of the Eastern Nations.

What the State of their Pathology was, we may in some measure infer from what has been said; for the Causes of Diseases were referr'd to Demons, who were the Dispensers of Health and Diseases. Some are of Opinion, that their Pathology must have received considerable Improvements from the Opportunities the Embalmers had of viewing and inspecting the human Viscera. *Herodotus*, and *Diodorus Siculus*, think, that their observing these Viscera to be variously corrupted, laid a Foundation for their believing, that Diseases were produced by the Substances taken for the Nourishment and Support of the Body. This might, perhaps, be the Foundation of their particular Regimens, with respect to Diet, in order to guard themselves against Diseases: Hence, also, might arise their Use of Clysters, purgative Draughts, Fastings, and Vomits, with a View of preserving themselves from Diseases, by removing their first Causes. This Method they used, according to *Herodotus*, for three Days successively each Month; or, according to *Diodorus Siculus*, with an Intermission of three or four Days. Each of these Authors may have given a faithful Account of the Practice of the Time in which he lived, tho' their Relations differ. The *Egyptians*, according to *Pliny* and *Ælian*, learned the Use of Clysters from the Bird *Ibis*, whose Beak was so form'd by Nature, that she could commodiously introduce it into her Anus, and inject a Fluid for cleansing her Intestines; and this, together with their other Methods of evacuating the Body, were from them propagated to other Nations. It is also probable, that Frictions, Baths, and Ointments, were originally used among the *Egyptians*, before they were known to the *Greeks*. *Herodotus* was of Opinion, that the sound and healthy State of the *Egyptians* was owing to the Constancy of the Seasons, since the Atmosphere, in their Climate, is subject to no remarkable Changes or Alterations; so that their preservative Method might, on this Account, be attended with the greater Success. Before we leave the Diet of the *Egyptians*, we shall observe, that, whatever some Authors have asserted, the Eating of Flesh was common among them, tho' under certain Restrictions and Limitations. Thus *Herodotus* informs us, "That the Priests had Plenty of every thing; that they lay under no Necessity of spending any thing of their own Fortunes; they were daily supplied with Beef and Goose from the Altars; that they had Wine furnished them; but that they were not allowed to eat Fish; and that Beans were not sown in all the Land." Hence probably the famous Prohibition of *Pythagoras*, with respect to this Vegetable.

But tho' the *Egyptians* used Flesh for Food, yet they were under greater Restrictions, in this Particular, than most other Nations; for what the Legislators of one Country allow'd, was, for political Reasons, expressly prohibited in others. The Drink commonly in Use among the *Egyptians* was the Water of the River *Nile*, which, *Plutarch* informs us, was held in great Esteem by them, and rendered those who drank it very corpulent. *Herodotus* tells us, that the Soil of *Egypt* is not proper for the Culture of Vines; so that the Wine used by their Kings and Priests must have been imported from other Nations. We may form a Judgment of the Temperance of the *Egyptians*, from the Method of Life enjoined even Kings; who, according to *Diodorus Siculus*, "lived upon simple Food, and a moderate Quantity of Wine, which could neither produce Repletion nor Intoxication: In short, so moderate a Regimen was prescribed, that the Laws, relating to this Particular, seemed rather to be the Directions of a sagacious Physician, than the Injunctions of a Legislator." To this Frugality and Temperance the Children were inured from their very Infancy.

As for their bodily Exercises, they were widely different from those of the *Greeks*, since as *Diodorus Siculus* informs us, it was not customary among them to learn Music and Wrestling; for they were of Opinion, that by the daily Exercises of the *Palestra*, a genuine Health was not generated, but a short-lived Strength, highly dangerous to young People.

In common Life they were extremely studious of Cleanliness, and, in this respect, follow'd the Example of the Priests; who, according to *Herodotus*, had their Bodies shav'd all over every third Day, and wore always, when in the Exercise of their Offices, clean Linen Garments to prevent the Generation of Vermin, and the Contraction of Sores. We also learn from the same Author, that Shaving was universally in Use among the *Egyptians*, and that it was customary with them to go with their Bodies either not at all, or very slightly cover'd.

cover'd. They did not allow their Hair to grow, except when upon a Pilgrimage, or when they had bound themselves by an Oath to the Gods so to do. So far were they from shaving their Bodies from a Principle of Grief, that they never allow'd their Hair to grow, except when some terrible Calamity had befallen them.

Galen seems to lay great Stress upon the Astrological Predictions of the *Egyptians*, and wonderfully recommends their Precepts injoining the Observation of the Moon.

As for the Practice of the *Egyptians*, we can only bestow this general Encomium upon it, that it was of old celebrated all over the World, and that, according to *Isocrates*, they used the most safe and salutary Medicines. The *Nepenthes* is highly celebrated by *Homer*, and by *Diodorus Siculus* called ὀργῆς καὶ λύπης φάρμακον, the Remedy of Anger and Sorrow. The Poet ascribes so singular Virtues to it as to affirm, that whoever drinks it mix'd with Wine, shall not be sad during that Day, tho' his Father or Mother should die, or even tho' his Brother, or dearest Friend, should be murder'd before his Eyes. He also asserts, that *Helen* got this *Nepenthes* in *Egypt* from *Polydamma* the Wife of *Thon*. Since the Sentiments of Authors are various with regard to this Medicine, it would be too tedious to mention them all. *Olaus Borrichius* is probably in the Right, when he conjectures, that it was some Preparation of Opium, and Dutroy, both the Produce of *Egypt*. This Opinion appears the more consonant to Truth, because the modern oriental Writers agree with *Galen*, that the best Opium is the *Thebaic*, which at this Day, is produc'd at *Abutige*, a Town in the Region of *Thebais*. The *Egyptians* used often to retire to the Temple of *Isis* and *Serapis*, where, during their Sleep, they expected Remedies to be revealed to them. *Strabo* also informs us, that they did the same in the Temple of *Vulcan* near *Memphis*. But 'tis highly probable, that, on urgent Occasions, Medicine was practis'd by the Vulgar, as well as by the Priests, since we are told by ancient Historians, that *Egypt* was full of Physicians, and that all its Inhabitants practis'd as such. But 'tis scarce probable, that the Medicine of the Vulgar extended farther than Prevention by Vomits, Purges, and Clysters, which were, perhaps, confined to themselves, and those of their Family; but we are told by *Diodorus Siculus*, that none durst profess Physic, without being admitted as a Member of the College of Priests.

About a hundred Years after *Moses*, who lived 1530 Years, or thereabouts, before the Birth of Christ, *Melampus* an *Argive*, the Son of *Amythaon* and *Aglaia*, having travelled into *Egypt*, and made himself acquainted with the Sciences then cultivated in that Country, introduced into *Greece* a great deal of their Theology and Superstition, together with Magic, the Arts of Divination, and of Physic. With respect to the latter, three very remarkable Circumstances occur. The first is, That he cured the Daughters of *Prætus* King of *Argos*, of Madness, by purging them with Hellebore, whether the Black or White is uncertain, the cathartic Quality of which he is said to have learned from observing, that his Goats were always purged after eating of this Vegetable.

The second Circumstance is, That after purging these Ladies with Hellebore, he bathed them in a certain cold Fountain. Here we have the first Instances upon Record of Purging, and of bathing with a medicinal View.

The third Circumstance relates to another Cure said to have been performed by *Melampus* upon *Iphiclus*, one of the *Argonauts*, and the Son of *Phylacus*. This Hero, it seems, had not the Capacity of getting Children, of which he was very desirous; and, upon applying to *Melampus*, was directed to take the Rust of Iron for ten Days together in Wine; which he accordingly did, and found from it the Effects he wish'd for. It is scarcely worth while to mention, that he is said to have learned this Piece of Practice, by his Skill in Augury, from a Vultur, which communicated it to him; for if the Story is true, which Mr. *Le Clerc* doubts, he was probably able to assign better Reasons for what he did, deduced from Reason or Experience, whatever Parade he might make of acquiring his Knowledge by extraordinary Means, in order to raise his Reputation among his ignorant Countrymen; an Artifice not uncommon in our Days amongst the Disingenuous and Artful, of which the Conduct of the Adepts and Empirics furnishes us with a thousand Instances.

Melampus, moreover, employed Incantations and Charms in the Cure of Diseases, which it is likely he was taught in *Egypt*.

These Particulars we learn from *Herodotus*, *Pausanias*, *Ovid*, and *Apollodorus*; and they will furnish us with the following Remarks.

First, That the Art of Physic must have made a greater Progress in this early Age than is generally allowed; since, in the Case of *Prætus's* Daughters, *Melampus* practis'd a Method which could not have been much mended in our Days, considering the singular Effects of Hellebore, especially the black Sort, in Disorders peculiar to that Sex, and the Propriety of subsequent cold Bathing.

In the Case of *Iphiclus*, if, as may be reasonably supposed, his Impotence proceeded from a Relaxation of the Solids, and the languid Circulation of the Fluids, I believe a modern Physician, in such a Case, could not have done better, than by administering proper Preparations of Iron, to correct the general Defects in the Constitution, and to remove the Imbecillity depending thereon.

The other Remark I would make is with respect to Incantations and Charms, which we are told *Melampus* employ'd in Diseases. These were coeval with Physic, and seem to have been originally introduced artfully, in order to impose a Belief upon those not in the Secret, that the Person who exercised them, was particularly favoured by some superior Being. This was attended with a very good Effect upon the Practitioner, as it excited a Veneration for him in the Minds of the Vulgar; and, in consequence of this, the Patient was more easily prevailed upon to submit implicitly to whatever was directed. Mean time the Cure was performed by some Remedy of real Efficacy, administered as a Part of, or only in Aid of, the Charm or Incantation, as the Patient was made to believe. If the Priests of *Isis*, or *Æsculapius*, had been acquainted with the Virtues of the *Peruvian Bark* in the Cure of intermitting Disorders, it would have been an easy Matter for them to have defrauded this Remedy of its Reputation, and transferred it to some mysterious Incantation performed at the time of its Exhibition. I must, however, confess, that the Solemnity of the Ceremony might possibly have some Effect on the Person upon whom it was performed, as it might exalt the Faith of the Patient in his Physician, a Circumstance of no small Moment, and, besides, might give, in some Degree, a Turn to the Distemper, as the Body is manifestly influenced by the Affections of the Mind.

Thyodamas, the Son of *Melampus*, is said to have inherited his Father's Medicinal Knowledge; but History does not furnish us with any remarkable Instances of his Practice. *Polyidus*, the next Physician upon Record, was either Grandson or Nephew to *Melampus*; but we are not informed of any Particular, with regard to his Practice. We may however collect, that he was in great Reputation, by the fabulous Accounts which his Countrymen give of him. They relate, that *Glaucus*, the Son of *Minos* King of *Crete*, was accidentally suffo-

cated,

cated, and buried in a large Vessel of Honey, so that his Father could not find out what had been his Fate, or where he was, till *Polydus*, by his Skill in Augury, discovered him, and then restored him to Life.

The next Physician, or Surgeon, for the two Professions were not separated till many Ages after, amongst the *Greeks*, was *Chiron* the Centaur. This great Man, for such he appears to have been, is much celebrated for his Knowledge in all the polite Sciences then cultivated, and particularly in the Medicine both of Man and Cattle; from which Circumstance he was fabled to be half Man, and half Beast. His Name derived from *χῆρ*, *Cheir*, which signifies a Hand, and the Appellation of *Chironcean*, given to the most untractable Species of Ulcers, should seem to be Evidences of his being principally concerned in the Chirurgical Part of Medicine. But as it is highly improbable, that he could have been ignorant of the Advances which had before his Time been made in Physic, we have the more Reason to depend upon the Testimonies of *Plutarch*, *Pliny*, and other Authors, who represent him as one well acquainted with the Virtues of Herbs, and as a Person who made some Improvements with regard to internal Remedies. Thus he is said to have discovered the Virtues of Centaury, a Plant which we are told received this Name from him.

The extreme old Age to which *Chiron* lived, furnished the *Grecians* of Distinction, for more than one Age, with an Opportunity of giving their Children a liberal Education under his Tuition. Thus *Hercules* is said to have been among the Number of his Pupils; but we meet with very little relating to his Medicinal Knowledge, except that the Fable of his destroying the *Hydra* of *Lerna* may be interpreted to import his draining the Fen of that Name with a medicinal Intention; I mean, that of delivering the adjacent Countries from endemial Distempers, to which the poisonous Exhalations from such a Marsh subjected them; and that he may be supposed to have cured *Alceste*, the Wife of *Admetus*, of some very dangerous Distemper; whence the Fable, that he released this Princess from Hell, after having conquered *Pluto*, that is, Death. It is observable, that many Plants derive their Names from *Hercules*, and that the Epilepsy has acquired the Appellation of the *Herculean Disease*; but I am of Opinion, that, with respect to these Plants, they were not originally called so, because *Hercules* discovered their Virtues, but because they were esteemed irresistible in the Cure of certain Disorders; and as to *Herculean*, applied to the Epilepsy, it seems only to import the Disease being invincible, and not that *Hercules* was either acquainted with the Nature of it, or afflicted with it.

Another of *Chiron's* Pupils was *Aristæus*, who appears to have been very well acquainted with natural Productions, and to have applied some of them to Uses not universally known before his Days: Thus the Arts of making Oil and Cheese, and of collecting Honey, are said to have been invented by him. And Mr. *Le Clerc* attributes the Discovery of Silphium, and its Uses, to *Aristæus*.

A third Hero educated by *Chiron* was *Jason*, who commanded in the *Argonautic Expedition*, which has been the Subject of many Poems, and given Rise to a Multitude of Fables. *Horricius* takes a great deal of Pains to prove, that the celebrated *Golden Fleece* was a Book containing the Art of making Gold. But whoever considers the Circumstances of this Expedition, will perceive it highly probable, that the *Greeks* gave a fabulous Turn to the *Argonautic* Exploit, in order to disguise the real Intent of it, which was mere Robbery; and that the Riches of *Æetes* King of *Cholcis* allured this Band of Heroes, and inspired them with the Desire of plundering him, which, to their great Honour, they effected. Thus in all Ages Robbery and Murder have been esteemed infamous in little Villains only, but glorious in Heroes.

Hecate, the Wife of *Oetas*, with *Circe* and *Medea* his two Daughters, is celebrated by Antiquity for her Physical Knowledge. The Researches of *Hecate* seem to have been made with a View of discovering the poisonous Qualities of Plants, in which she was very successful; an Instance of which is the *Aconitum*, or Wolfsbane, the deleterious Qualities of which she has the Reputation of having first remarked.

Circe, according to *Diodorus Siculus*, inherited her Mother's Skill, and acquired more by means of her own Researches; but the bad Use she made of her Knowledge has rendered her Character the most infamous of any we meet with in Antiquity; for she poisoned her Husband, a King of the *Sarmatians*, for which, and some Exploits of the like Nature, she was obliged to fly from her Country, and take Refuge either in *Italy*, or a desert Island not very distant from it. A little of the *Grecian* Exaggeration made this Lady Daughter of the Sun, and a Sorceress; whence all the Romances we meet with in regard to her History.

The Character of *Medea* her Sister is more amiable, tho' much involved in Fable. Besides her Knowledge of Vegetables, she is the first, as is said, who made use of warm Baths, and is therefore reported to have boiled People alive; and an Accident which happened to *Pelias* a King of *Thessaly*, added Credit to the Scandal. This Prince, being very old, had an Inclination to try the Efficacy of this new Remedy, and died under the Experiment. She has farther the Reputation of having been able to restore Youth to old People; because, as is conjectured, she had a Method of communicating a black Colour to grey Hairs, by means of certain Plants, the Virtues of which she first discovered; but others are of Opinion, that what gave Rise to this Fable was, that she had the Art of rendering the most effeminate Bodies strong and vigorous, by directing suitable Exercises.

Angitia, or *Angerona*, is by some mentioned as Sister to *Medea* and *Circe*, whilst others think her the same as *Medea*: We, however, meet with nothing relating to her Medicinal Capacity, but what is fabulous.

Amongst the Heroes of the *Argonautic Expedition* was the celebrated *Orpheus*, who, according to *Pliny*, wrote on the Subject of Plants; and is by others reported to have discovered Remedies for some Diseases, the Particulars of which are not mentioned.

Linus the Poet also, on account of his having wrote on Fruits and Trees, is said to have had some Knowledge in Medicine.

But with respect to Physic, the most eminent Pupil of *Chiron* was the *Grecian Asclepius*, of whom I have given an Account under the Article of his Name.

About seventy Years after the *Argonautic Expedition*, the confederated Armies of *Greece* invaded the *Trojan Territories*; this gave Occasion to a celebrated Period in History, which answers to the Year 1194. before Christ. *Achilles*, one of the Heroes concerned in this War, was, in consequence of his Education under *Chiron*, acquainted with Physic, and is mentioned as the Inventor of some Remedies, which are specify'd under the Article of his Name. Nor was his Companion *Patroclus* ignorant of this Art, as we may infer from his dressing the Wound of *Eurypylus*, at the Request of the last-mention'd Hero.

Protefilaus the Son of *Iphiclus* was remarkable for being the first of the *Greeks* who was killed in the Expedition against *Troy*, and is farther celebrated by *Philostatus* for his great Skill in Physic; which he must have possessed in an eminent Degree, if it is true, that he could cure all Distempers, and particularly Dropsies, Consumptions, Quartans, and Diseases of the Eyes.

Pliny attributes the Discovery of the Virtues of the *Teucrium*, against Obstructions of the Spleen, to *Tæncer*, another of the *Grecian* Heroes.

About this Period, *Leucus* a Companion of *Ulysses*, as we learn from *Ptolemy* of *Alexandria*, usually called *Ptolemaeus Hephaestionis*, quoted by *Photius*, dedicated a Temple to *Apollo* upon the Rock of *Leucas*; but it is probable, that the Custom of leaping from this Rock into the Sea, with a View of curing Love, began long before, because we are informed by the same Author, that *Venus*, by the Advice of *Apollo*, took this Method in order to cure herself of her Passion for *Adonis*.

Homer also celebrates *Agamede* the Daughter of *Mulius*, and tells us, she was acquainted with all the Medicines which the Earth produces.

Ἡ τόσα φάρμακα ἦν ὅσα τριφεῖ εὐρεῖα χθών.

But *Macbaon* and *Podalirius*, the Sons of *Æsculapius*, of all the *Greeks* concerned in the Siege of *Troy*, were the most eminent for their Medicinal Knowledge. We find them, however, concerned only in Chirurgical Cases; but it is not probable, that these Heroes, who were thus descended, and Physicians by Profession, could be ignorant of any thing which had at that Time been discovered with respect to internal Medicine, especially if we reflect, that Physic, as well as Surgery, was cultivated in the Family of *Podalirius*, and received from time to time such Improvements from his Posterity, that *Hippocrates*, the seventeenth in lineal Descent, was enabled to bring these Arts to a surprising Degree of Perfection.

In the History of *Podalirius*, we meet with the first Instance of Bleeding: This Hero, according to *Stephanus Byzantinus*, was, in his Return from the Siege of *Troy*, driven by a Tempest upon the Coasts of *Caria*, where the Shepherd who received him, understanding that he was a Physician, conducted him to King *Dametbus*, whose Daughter had fallen from the Top of a House. *Podalirius* cured the young Princess by bleeding her in both Arms. With this lucky Accident the King her Father was so well pleased, that he gave her in Marriage to him, and a Part of his Kingdom as a Dowry.

Antiquity furnishes us with very few authentic Materials relative to the History of Physic, from the *Æra* of the *Trojan* War to the Time of *Hippocrates*. Some, however, during this Interval are mentioned, who employed themselves in Medicinal Researches, besides the Descendants of *Æsculapius*. Thus *Solomon*, who lived about a hundred and sixty, or a hundred and eighty Years after the *Trojan* War, is represented by *Josephus*, as one perfectly well acquainted with the Medicinal Virtues of all natural Productions; which agrees with the Character we find in Scripture of this Prince. The same Author relates, That a Queen of *Ethiopia*, called in Scripture, the Queen of the *East*, whom the Reputation of *Solomon's* Wisdom brought to *Jerusalem*, made a Present of the true Balsam-tree to her Royal Host, who by Cultivation propagated this precious Plant in his Gardens about *Jericho*.

Epimenides has the Reputation of having taught the *Greeks* the Use of Squills. He is farther said to have slept fifty-seven Years in a Cave; which is interpreted to mean, that he was so long absent from his Country, and spent that Time in travelling, principally with a View of making Discoveries in Physic and Philosophy.

Thales and *Phercydes* are also said to have travelled into *Egypt*, and thence to have imported the Sciences into *Greece*, and amongst the rest Physic.

Pythagoras, who is said to have lived about the 60th Olympiad, that is, about 520 Years before Christ, travelled into *Egypt* and the *Indies*, in quest of Knowledge; and upon his Return to his own Country, which is said to have been *Samos*, finding it in a State of Slavery to the Tyrant then reigning, he removed to *Crotone*, where he founded a School much celebrated in Antiquity. *Celsus* mentions this Philosopher, as being instrumental in the Advancement of Medicinal Knowledge. He seems to have studied more the Preservation of Health, and Prevention of Distempers, by means of a proper Regimen and Diet, than the Cure of Diseases by Medicines. Vinegar of Squills, however, is said to be a Remedy invented by him; but it is also said, that he learned the Virtues of Squills from *Epimenides*. Neither *Pythagoras* nor any of his Disciples were, properly speaking, Practitioners of Physic, since they applied themselves principally to the Theory of the Art, except *Empedocles*; at least we read of no Cures performed by any other of them. As for *Pythagoras* himself, he neglected nothing that could improve his Mind, or increase his Knowledge. 'Tis highly probable, that he acquired his Skill in Medicine among the *Egyptians*; but we have only some small Fragments of his Works, and some of these breathe the same Spirit of Superstition, which had been the Bane of preceding Physicians; for what he has wrote concerning Physiology is very inconsiderable.

He imagined that at the Instant of Conception a certain Substance, containing a warm Vapour, descended from the Brain; and that the Soul, and all the Senses, drew their Origin from this Vapour, whilst the Flesh, the Nerves, the Tendons, the Bones, the Hairs, and the Body in general, were formed of the Blood, and other Humours, conveyed to the Matrix. He asserted, that the Body of the Fœtus was formed, and become solid, in forty Days; but that, according to the Laws of Harmony, seven, nine, and for the most part ten Months were necessary to render it entirely perfect; and during that Time, according to his Doctrine, whatever was to happen to the Child in the whole Course of its Life, was regulated and determined. He affirmed, that the Veins, the Arteries, and the Nerves, were the Bonds of the Soul. According to him, the Soul was extended from the Heart to the Brain, and that Part of the Soul which is in the Heart, is the Source of the Passions; whereas Reason and Understanding reside in the Brain. This Opinion, which is common to him with the sacred Writers, he perhaps, received from the *Chaldeans*, with whom he had conversed.

As for the Causes of Diseases, whatever Notions he entertained of them, were learned in the same School, and in that of the Magicians, whom he had also consulted. The Air, he said, was full of Spirits, Demons, or Heroes, which are the Authors of Dreams, Signs, and Diseases, both to Men and Beasts. Lustrations and Expiations, according to him, had a Relation to these Demons and Spirits. In the same School, he no doubt learned what he wrote concerning the magic Virtues of Plants. Upon this Subject he composed a Book, by some ascribed to a Physician called *Clemporus*. As for the natural Properties of Plants, *Pliny* only informs us, that he laid a particular Stress upon those of Cabbage.

Some of the Maxims he laid down with regard to the Preservation of Health are yet preserved: If, says he, we intend to enjoy Health, we must accustom ourselves to such Food as is most simple, and may be found everywhere. For this Reason he eat no Flesh, but lived upon Herbs and Water. He also prohibited the Use of Beans, probably in Imitation of the *Egyptians*. As he lived in this manner, it was easy for him to follow that Advice he gave, when he ordered not to approach a Woman, unless with an Intention to become weaker. He also asserted, that it was highly improper to run into Excesses, either with respect to Labour or Nourishment.

He

He made Health to consist in a certain Harmony which is not explained. He asserted the same thing concerning Virtue, every thing which was good, and God himself; so that every thing in the universal System subsisted by Harmony. By this Harmony he probably meant the Relation, or just Proportion, which all things ought mutually to bear to each other; or the natural Order of all things. As to the famous mysterious Doctrine of Numbers, each, according to him, was possessed of its proper Dignity, some being much more perfect than others. The odd Numbers, for Instance, were more considerable, and of a higher Virtue, than those which were even. The former represented the Male, and the latter the Female. But the Number Seven was of all others the most perfect.

From this Opinion sprung originally the Doctrine of Climacteric Years, the Discovery of which is attributed to the *Chaldeans*, from whom *Pythagoras* might have also learned it. This Name is given to every seventh Year of the Life of Man, and it is by some thought, that in this Year he runs the greatest Risque, not only with regard to Life and Health, but also with regard to the Goods of Fortune, in consequence of the Changes which happen in these Years.

If we may believe *Celsus*, it is upon the same Foundation that the Persuasion of the Physicians is built with respect to the Force of the Number Seven in Diseases, and the Difference between odd and even Days.

They who assert, that *Pythagoras* left no Writings, and that all we know of his Sentiments is taken from the Works of his Disciples, may deny that this Philosopher ever entertained any such Notion. *Galen*, who for other Reasons than those drawn from the Perfection of Numbers, considered in themselves, believed that we ought to pay Attention to odd and even Days, is astonished that *Pythagoras* should have been of this Opinion. " 'Tis so easy, says he, to discover the Absurdity and Vanity of what is advanced with respect to the Power of Numbers, that we have just Reason to be surpris'd, that *Pythagoras*, who was in other respects so wise and knowing, should have attributed so much to them." This Philosopher had enjoyed an Opportunity of examining them, and admiring the Result of their various Combinations, since, as is said, he was acquainted with Arithmetic and Geometry; but that these rational Sciences ought rather to have given him a Disgust at the Trifles above-mentioned.

All this Theory of *Pythagoras*, with respect to Physic, affords an Occasion of reflecting upon the Weakness, and at the same time upon the Vanity, of human Nature; for as the Whole of his System is either entirely false, or at best precarious, both these must have been concerned in prevailing on this otherwise extraordinary Man, for such he appears to have been, to have propagated Chimeras which he had either learned or invented, instead of Realities; and to have impos'd imaginary Laws of Action upon the Animal Oeconomy, instead of investigating the Rules by which it is actually governed. But, to do Justice to this celebrated Philosopher, I must confess, that his particular Theory is neither better nor worse, than those which have been founded upon some more modern Systems of Philosophy.

Zamolxis, whom the *Getae* adored as their God, has passed for the Scholar of *Pythagoras*, tho' others believe him to be a great deal older. The Knowledge of Medicine has also been ascribed to him. We are pretty much in the Dark as to this Particular; only we know, that he asserted, " That the Eyes could not be cured without the Head, nor the Head without the rest of the Body, nor the Body without the Soul." He also maintained, that the *Greek* Physicians wanted Success in the Cure of most Disorders, in consequence of their Ignorance with regard to this Particular. The Remedies he used for the Cure of the Soul were Incantments; not like those used by *Aesculapius*; for if we may believe *Plato*, " The Incantments of *Zamolxis* were nothing more than rational and moral Discourses; for these produce Wisdom in the Soul, which being once acquired, it is easy to procure Health, both to the Head, and to all the other Parts of the Body."

But, amongst all the Disciples of *Pythagoras*, none made so great a Figure as *Empedocles*; of whom it is said, that he discovered the Reasons why *Sicily* was much subject to Pestilence, and such a Sterility of the Soil, as to cause Famine. These were caused by a frequent South Wind, which, blowing through the Overtures of certain Mountains, had a bad Influence on the Country. He therefore directed these Overtures to be stopped up, and thereby prevented the Consequences of these South Winds for the future.

He also acquired great Reputation by a Case which is related under the Article *ΑΡΝΟΒΑ*, which see.

We learn from a Passage in *Plutarch* in his Treatise *περί τῶν ἀρεσκόντων τοῖς φιλοσόφοις*, that *Empedocles* was acquainted with the Cochlea of the Ear, where he said Sounds were formed. We meet with no Instance before his Days of this Part of the Organ of Hearing being observed.

As to the Physiology of *Empedocles*, it does not appear, that he was more excellent than his Master *Pythagoras*: He made one Observation however, which appears to be very just, and is confirmed by modern Discoveries; which is, that the Seeds of Plants are analogous to the Eggs of Animals.

Empedocles was of *Agrigentum*, a Town in *Sicily*, and flourished about the 84th Olympiad, that is, about 430 Years before Christ. He esteemed Physic so much, that he said the Physicians excelled all other Men, and approached the nearest in Rank to the immortal Gods. This Sentiment was very different from that of the famous *Heracitus*, who was of Opinion, that if it was not for the Physicians, the Grammarians might be placed in the highest Rank of Fools; perhaps this last-mentioned Philosopher might be displeased with the Profession, because some of the Physicians, his Contemporaries, might be wise enough to oppose the Introduction of his Philosophy into Medicine, and impertinent enough to ask some Questions, which would give him a great deal of Trouble to answer.

Acron was a Countryman and Contemporary of *Empedocles*: What relates to him as a Physician, is specified under the Article of his Name, which see.

Alcmeon of *Crotona* was another Disciple of *Pythagoras*, who made Physic his favourite Study. His particular Notions are specified under the Article *ΑΝΑΤΟΜΙΑ*, which see. He is said to have been acquainted with the Passage from the Palate to the Ear, now called the *Eustachian Tube*, perhaps because he asserted, that Goats respired by their Ears. *Abaris*, the famous *Scythian*, has the Reputation of having understood Physic, as is mentioned under the Article of his Name.

I have designedly omitted many fabulous Accounts of the Heathen Deities, who were said to be Inventors of Physic, because they are of little Importance in our present Inquiries; and, because I would confine myself to the History of Physic, I have taken no Notice of a great many Philosophers, who were not Physicians by Profession, and who considered Medicine only as an Appendage to Philosophy. It will, however, be necessary to represent the State of Physic in some other Nations, and amongst other People of Antiquity, besides the *Egyptians* and *Greeks*, before I proceed to the *Æra* of *Hippocrates*.

The Druids were at the same time the Priests, the Judges, and the Physicians, of the antient *Gauls*. *Pliny* observes, with regard to their Practice, that they attributed a great deal to the Mistletoe of the Oak, which they looked upon as a Remedy of uncommon Efficacy against Barrenness, and all Poisons whatever; and that they gathered it for Use with abundance of superstitious Ceremonies. The same Author also informs us, that the Druids highly recommended an Herb called *Selago*, somewhat resembling Savin; but this Herb is not known in our Days. Besides, from the sixth Book of *Cæsar's Commentaries*, we gather, that when any of the *Gauls* were seized with any terrible Disorder, they made a Vow to sacrifice human Creatures, with a View to recover their Health, and that the Druids were the barbarous Ministers of these inhuman Rites. We cannot determine precisely when the Druids began: *Aventinus*, in his Annals, thinks there was a College of Druids in the Time of *Herman*, or *Hermion*, a King of the *Germans*, by some said to be contemporary with the Patriarch *Jacob*; but all this is fabulous. According to *Pliny* and *Suetonius*, their Order became extinct in the Times of *Tiberius* and *Claudius*; or, at least, these Emperors issued out Edicts for banishing and exterminating them, because they were looked upon as Magicians, and People who used unlawful and sinister Arts.

With the Druids we may class that Species of the Gymnosophists, of whom *Strabo* makes mention, who practised Physic, and boasted of being able, by their Remedies, to enable those who desired it to have many Children, and these either Boys or Girls as they had a Mind. The Origin of the Gymnosophists is very antient.

The *Chinese*, and some other Oriental Nations, have been in great Reputation for their Knowledge in Arts and Sciences; it does not, however, appear, that this Character is altogether just. With respect to the Medicine of these Nations, I must be obliged to *Schulzius* for his Account of it, as I have not the Authors from whence he has extracted it.

Other Eastern Nations pretend, that the Knowledge of Medicine first flourished among themselves; but the principal Claims, with regard to this Particular, are laid by the *Chinese*, the *Japanese*, and *Malabarians*. The *Chinese*, with whom the *Japanese* agree in a great many Particulars, affirm, that Kings who lived long before the Deluge, were the Inventors of their Medicine. We have no Accounts of the Dignity of Physicians among them in these remote and early Times: However, as a public Body of Men, they are at present very inconsiderable, if we may believe *Johannes Neubesius*, in his *Descript. Legation. Batavica*. Notwithstanding this unpromising Circumstance, the *Europeans*, who live among them, are said to commit the Care of their Health to them, in Preference to Physicians who are their own Countrymen. They acquire a Knowledge of Diseases by a long and tedious Observation of Pulses. This Method, they say, they were taught by one *Lipe*, and King *Hoamiti*, who, according to their Chronology, lived two thousand six hundred and eighty-eight Years before *Christ*. Besides the Pulse, they consider the Eyes, the Tongue, and the Face of the Patient, but neglect all other Circumstances from which Prognostics might be drawn; for they neither interrogate the Patient with respect to his State, nor inspect the Urine of those who are under their Care. When they know the Pulse, they form a Judgment of the Nature of the Disease, and make their Prognostics accordingly. After this they have recourse to a most antient Book, which is the Standard of their Practice, find out the Denomination of the Pulse, and the Remedies appropriated to the particular Disease, of which it is the concomitant Symptom. Most of their Medicines are simple, and easily prepared, such as Decoctions. They are entirely ignorant of Chymistry, shamefully neglect Anatomy, and never admit of Phlebotomy, as *Cleyerus*, in *Fragment. Oper. Medic.* informs us. They imagine, that there is a certain Circulation of the Blood and Spirits, which conveys the radical Moisture, and native Heat, thro' the Veins and Vessels of the twelve Members. This Circulation is, according to them, performed fifty times in the Space of twenty-four Hours, according to the Revolution of the Heavens through the fifty Houses. This phantastic and ridiculous Account of a Circulation of the Fluids in a human Body has induced some of the less wary and circumspect of the *Europeans* to assert, that the Circulation of the Blood was very early known to the *Chinese*. This Opinion *Cleyerus* asserts to be more than four thousand Years old, tho' some maintain, that it is only of four hundred Years standing. This Mistake has, in all Probability, been owing to *Paschius*, who, in his Work *de Novis Inventis*, has not accurately transcribed the Number from *Cleyerus*. Thus the Error of one has, as it generally happens, misled Numbers of others.

They have formed a pompous kind of Pathology, in order to account for painful and spasmodic Disorders: Upon this Theory depend Acupuncture, and burning *Moxa* on the Parts affected. Tho' these two Pieces of Practice are equally familiar to the *Chinese* and *Japanese*, yet they differ somewhat in the Method of performing them. Their Theory in general, however antient, is yet very imperfect and unphilosophical: Notwithstanding this, their Physicians, in consequence of their Experience and Industry, make a considerable Figure, and attract the Esteem and Veneration of our own Countrymen. For this Reason, the celebrated *Boyle* deservedly inculcates the superior Excellence of Practice and Experience.

The *Malabarian* Medicine, practised by the Bramines, is said to be no less antient than that of the *Egyptians*. We owe our Acquaintance with the State of Medicine, in that Nation, to the incomparable *Joannes Ernestus Grædlerus*, who, in the Year 1708, went to *Malabar*, in Quality of *Danish* Missionary. This worthy Gentleman, upon his Arrival in the *Indies*, read the Works of their Physicians, conversed with the most Learned and Skillful of the Bramines, and sent to *Europe* a small Work under the Title of *Medicus Malabarius*; in which he informs us, that the Art of Medicine is very antient in that Nation; that it is principally learned from a Book of Institutes, which, in their Language, is called *Wagadasthirum*, and which, in six Books, contains all their medicinal Knowledge. They deduce the Origin of Medicine from what they call the Supreme God, and assert, that for many Myriads of Years it was handed down successively thro' various Orders of Gods; that these communicated it to the Prophets, and the Prophets to the common Race of Mortals. Their Theory is not only lame and imperfect, but, for the most part, false and erroneous, as is obvious from their Doctrine of Pulses; for they assert, that the Source and Origin of the Pulse is situated about four Fingers Breadths below the Navel, and that seventy-two Thousand Arteries are thence distributed thro' all the Parts of the Body. This Source or Origin is, according to them, four Fingers Breadth wide, and the Length of two Fingers in Height. They assert, that its Form resembles that of Corals, and that it is the Place where Man was conceived. Their Theory of Respiration is equally absurd and ridiculous: They divide their Medicines into six Classes, according to their respective Tastes; that is, acid, sweet, saline, bitter, acrid, and astringent. They include the whole curative Part of Medicine in eight Classes, according to the like Number of Species of Diseases. But, before any one can excel in Medicine, he must run thro' all these Classes, and be well acquainted with each of them; and, since every one cannot lay a just Claim to such an extensive Degree of Perfection, hence it happens with them, that the Generality of Physicians confine themselves to one, or, at most, two of these Classes, that, neglecting the others, they may excel in those they particularly profess. To the first Class belong those who understand the Diseases of Children; to the second, those who know how to cure the Wounds made by venomous Animals:

to the third, those who undertake to banish Demons, and remove the Disorders of the Mind; to the fourth, those who assist such as are impotent, and incapacitated for Generation; to the fifth, those who banish Diseases in their Infancy, and these are held in greater Esteem than any of the rest; to the sixth Class belong Surgeons, or those who assist the Distress'd with their Hands; to the seventh, those who avert old Age, and prevent Baldness; to the eighth, those who know how to cure the several Disorders incident to the Head and Eyes. Over each of these Classes some Deity presides, as a Patron, and tutelary God: This imaginary Power these Physicians worship, and in his Name they exhibit their Medicines. Thus the Wind presides over the Diseases of Children; Water over the Disorders arising from the Wounds made by venomous Animals; the Air is helpful in banishing Demons; and a fiery Wind assists the Impotent; the Sun presides over those who banish the first Attacks of Diseases; and lastly, the Soul of Man presides over the Disorders of the Eyes and Head, as a kind of tutelary God.

They affirm, that every one has three principal Diseases born, at it were, with him. The first of these is called *Wodum*, that is, Wind or Flatulences in the Body; the second is called *Bittum*, that is, a Vertigo or Foolishness; the third is denominated *Tschestum*, that is, Impurities of the Humours: And these Diseases, happening from various Causes, are prevalent according to the particular State and Condition of the Patient, and either excite or suppress others. They enumerate their primitive Disorders, and those arising from them; from one of the primitive Kind they sometimes make three hundred and more to arise. The Diseases of the Mind are, according to them, seven hundred and ninety-two in Number; and all the Diseases both of Body and Mind, taken together, amount to two thousand eight hundred and forty-seven. In order to discover the true Natures of Diseases, they not only carefully observe the Pulse, but diligently consider the Excrements, and especially the Urine. When they want to find out whether any Patient will die or live, they put some of his Urine in a Vessel; then they immerse a Straw in pure Oil, and suffer the Oil to drop off the Straw into the Urine: If the Drop subsides to the Bottom, the Patient dies; but if it floats on the Surface, they confidently affirm, that the Patient will live. In forming their Prognostics they pay a great Attention to the Stars; and the Physician, when going to visit his Patient, superstitiously regards Auguries, considers Birds, and every Object that occurs, the Messenger that calls him, himself, and the particular Posture in which he was found by the Person who called him.

They give very accurate Directions with regard to the Choice of Medicines, the Places where they are produced, the Times of gathering, and the Method of keeping them; as also how each of them ought to be prepared, and preserved after Preparation. They also lay down Directions with regard to such Substances as they eat and drink, determine how long they remain good and wholesome, and specify the Vessels most proper for preserving them. They prescribe a most accurate Regimen for their Patients, determine how much they should sleep or wake in such or such particular Disorders, how often they should cleanse their Teeth, or wash their Mouth; in what manner they ought to lodge, and how it is proper for them to sup.

They cultivate Chymistry, which, they assert, was delivered to them in four Books by the God *Tschiewen*: They treat of Mercury, Sulphur, Antimony, and other Minerals; of Salts, Vitriol, and Alum; of Corals, Gems, and Metals; of the Instruments used in Chymistry, and the Method of performing its various Processes. They have several compound Medicines, and prepare universal Pills; but they exhibit every Medicine in a Vehicle appropriated to its Nature and Design. For particular Diseases they also injoin a particular Regimen. Most of them are Strangers to Venesection; and perform Scarifications very rarely, and that in a very unskilful manner. They scarce know any thing of Issues and Clysters: But such of them as live intermix'd with the *Europeans*, gradually adopt Venesection, and other Branches of our Practice.

In the Preparations of their Medicines, which is their Chymistry, they almost constantly use the Dung or Urine of Cows: This, no doubt, is owing to the high Opinion they entertain of the Sanctity of these Animals. They also use dry Cow-dung instead of Coals. With them there is no Distinction between Physicians and Apothecaries, but the same Man who prepares, also prescribes the Medicines. The Physicians must, with them, be inroll'd in the Books of the Bramines; and every one must, as in *Egypt*, remain in his stated Condition, and exercise that Branch of the Art his Ancestors had done before him. It is obvious, that these Eastern Nations, in many things, with regard to Physic, agree not only with each other, but also with the Medicine of the antient *Egyptians*. It were to be wished, that *Wagadasfirum*, that antient Book, were translated into *Latin*, and published; since it is not to be doubted, but, from it, we might learn a great many Particulars relating to the Medicines imported from the Eastern Nations: Perhaps also it might be found to differ little from the Books of *Hermes*, which the *Egyptians* looked upon as their Standard of Practice.

Tho' we are obliged to take our Accounts of the State of Medicine among the *Chinese* and *Malabarians* from modern Authors, yet we may reasonably believe, that Physic, in these Nations, is of a very old Date, since it is in a manner interwoven with their Religion. We have also Reason to believe, that Medicine retained its antient Form in these Nations, till the *Europeans* began to trade with them; especially if we add this Circumstance, that they are universally known to be rigorously attached to their antient Forms and Customs.

I must not finish the History of the Medicine of remote Nations, without observing, that, of all the People of whom History gives us any Information, the *Americans* appear to have acted the most prudently, and, with respect to Physic, to have been the wisest People of whom we have any authentic Accounts; because it is indisputably better to have no Theory at all, than one which is bad, and capable of introducing Errors into Practice.

Antonio di Solis, speaking of *Montezuma*, Emperor of *Mexico*, says, That he took a particular Care to transplant into his Gardens all the choice Simples that benign Climate produced, where the only Study of the Physicians was to attain to the Knowledge of their Names and Properties. They had Herbs for all kinds of Pains and Infirmities; and in the Juices and Application of those Herbs consisted all their Remedies, with which they effected surprising Cures; having, by long Experience, found out their Virtues, and which, without distinguishing the Cause of the Distemper, they applied, to the Patient's great Benefit and Relief.

The King freely distributed to all, who had Occasion for them, such of his Simples as were prescribed by the Physicians, or desired by the Sick; and used to inquire if the Patient had received any Benefit therefrom, either gratifying a sort of Vanity he had in the successful Operation of his Medicines, or believing that he fulfill'd the Obligation of a Sovereign, in taking such Care of the Health of his Vassals.

The same Author, in another Place, speaking of the Sickness of *Cortez*, informs us, that the Senate sent for all the best Physicians of their Country, whose Skill consisted in the Knowledge and Choice of medicinal Herbs, which they applied with a wonderful Discernment of their Virtues and Effects, varying the Medicine according to the Condition and different Turns of the Distemper, and to them he was entirely beholden for his Cure: For making use at first of wholesome cooling Simples, to correct the Inflammation, and mitigate the Pain, which

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occasioned the Fever, they proceeded by degrees to apply others, proper to ripen and heal the Wound, with so much Skill and good Fortune, that in a little time they restored him to his perfect Health.

Let the rational Physician laugh at Empirics; it is certain, however, that the first Knowledge of Physic was from Experience; and in a Country entirely unacquainted with Natural Philosophy, which searches out Causes by Effects, it was no small Matter to find so great a Progress made in the Knowledge of Nature.

Theory cannot assume, with any Appearance of Reason, the Power of discovering the Virtues of Simples in curing Distempers, tho', by investigating the Causes of Diseases, it may adapt known Remedies with greater Propriety, and perhaps Success, to particular Cases; provided always, that the Theory has its Foundation more in Truth, than in the Imaginations of the Whimsical and Trifling.

In consequence, therefore, of neglecting all manner of Theory, and cultivating Experience, the *Americans* have been able to discover to the *Europeans* the most effectual Remedies yet known, as the *Peruvian Bark*, *Ipecacuanha*, and a Multitude of others, for which we are indebted to the Experience of the illiterate Inhabitants of the new World; whilst all the boasted Learning of the *Europeans* hath been so little productive of Improvements in Physic, that, with respect to our own Plants, we know very little more of their Virtues, than what we have learned from *Dioscorides*, and some other of the Antients: And as to Distempers, those which were esteemed incurable two thousand Years ago, would have remain'd so to this Day, if the Experience of the Virtues of the *Peruvian Bark*, Mercury, and Antimony, had not furnished us with the Means of relieving Patients labouring under some few.

I shall now proceed to the *Æra* of *Hippocrates*, in which we have more certain, as well as useful, Accounts of Physic; after having taken Notice of four celebrated Persons, who were either contemporary with, or preceded that great Physician, a very few Years; I mean *Iccus*, *Herodicus*, *Democritus*, and *Ægimus*.

Iccus, then, if we may believe the Testimonies of some antient Authors, was a Physician who lived some time before *Herodicus* of *Selymbria*, and who was highly attached to Athletic Exercises: But he differ'd very considerably from some others of the same Class, because he practised Temperance and Sobriety to such an exalted Degree, as, on that Account, to become a Proverb. He is also said to have remained all his Life unmarried, lest he should dissipate and impair his Strength by conjugal Embraces. With the same View he advised other Wrestlers to abstain from Venery, during the Time they were preparing themselves for entering the Lists: But it cannot be said, that all Athletics have follow'd his Example in this Particular, since we read of some who have been invigorated by a moderate Use of Venery.

Herodicus, or *Prodicus*, of *Selymbria*, was born some time before *Hippocrates*, and flourished at the same time that Physician did; tho' *Pliny* informs us, that he was one of the Disciples of *Hippocrates*. *Plato* makes him the Inventor of the Gymnastic Medicine, or that which, by various kinds of Exercises, procures and preserves a good Habit, and removes Diseases after they are formed. The same Author informs us, that being a School-master of an infirm Constitution, and labouring under an incurable Disease, he first made a Trial upon himself, how much Exercise contributed to stop the Progress of Diseases; and that he afterwards proceeded to cultivate the Whole of the Gymnastic Art, and teach what particular Exercises were calculated to prevent particular Diseases; and, in this Branch of Medicine, he is, by some, asserted to have been Preceptor to *Hippocrates* himself. The very Mention of *Herodicus* renders it necessary, that we should take a brief View of the Antiquity of the Gymnastic or Athletic Art, since the Gymnastic Medicine drew its Origin from it.

The Gymnastic Exercises, then, so much celebrated in antient *Greece*, are much older than the Gymnastic Medicine introduced by *Herodicus*, or any other Author whatever; for they were, at least, practised at the Beginning of the Olympiads, an entire hundred of which, or four hundred Years, had certainly elapsed before the Day, of *Hippocrates*.

Among the other *Grecian* Heroes, *Hercules* is celebrated as the principal Author of these Exercises: But after him, the Practice being dropp'd, *Iphitus*, by public Consent, revived them, seven hundred and seventy-six Years before *Christ*. The Olympic Exercises were famous over all *Greece*. The Pythic were somewhat less solemn and pompous than these. The Nemean also, and the Isthmian Games, tho' not so famed as the former, were yet celebrated every third Year. These Games were called *iesai agōnes*, or Exercises consecrated to the Honour of the Gods. The Victors, in these Games, gained nothing by the Conquest, except the Glory of having overcome, and a certain Crown, which was bestowed upon them as a Badge of Honour.

Besides these, there were other Games instituted in private Cities, in which the Victors were rewarded with something more than bare Glory. All these Circumstances prevailed on the principal Inhabitants of *Greece* to consider the Improvement of their bodily Strength, and their Breath, as a Thing of Importance enough to deserve their serious Attention; and hence the Method of increasing both, by proper Exercises and Regimen, was erected into a Science. Time and Experience made it evidently appear, that these had a great Influence on Health; it was therefore obvious enough, that the adopting this Science into Medicine would be attended with many Advantages.

Ægimus is said to have lived before *Hippocrates*, and to have been the first who wrote upon the Pulse. See the Article of his Name.

Democritus is said to have been a great Traveller, and to have been much delighted in making Experiments; but the Accounts of him in general are involved in no small Obscurity, and his genuine Works are long ago destroy'd. The Historians who lived near his own Times have given us a few short Hints concerning him; but later Authors have, from spurious Works, collected many Circumstances relating to him, which have a direct Tendency to perplex and confound his History. Notwithstanding this Misfortune, we shall endeavour, in our Accounts of this Philosopher, to distinguish betwixt Probability and Fiction.

That *Democritus*, then, was an *Abderite*, and consequently a *Thracian*; that he was descended of a considerable Family, and was Master of a pretty ample Fortune, are Facts proved by a great many Circumstances; for when *Xerxes* was passing into *Europe* with a Design to subdue *Greece*, the Father of *Democritus* is said to have entertained that King, and to have received from him Magi and *Chaldeans*, with an Intention to educate his Son. After this *Democritus* studied under *Leucippus*, the celebrated Master of the *Eleatic* School. He is also said to have entertained a high Notion of the *Pythagoreans*, and to have improved himself by them. Prompted by an insatiable Thirst after Knowledge, he travell'd thro' *Egypt*, *Persia*, *Arabia*, and *Ethiopia*, till he became old; conversed with the *Gymnosophists* and *Babylonians*, and spent a Patrimony of an hundred Talents. On his Return home he led a solitary Life in a Country Garden given him by his Brother, where he tried Experiments, collected his former Observations, and wrote his Books. As he abhorr'd the Manners and Customs of his Countrymen, and laughed at the Fooleries they treated in a serious Manner, he began to be looked upon as a mad Man, and

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some insisted, that he should be put to Death for squandering away his Patrimony. But, when he had read his Works to his Fellow-citizens, he was not only absolved, but presented with an incredible Sum of Money.

'Tis commonly reported, that the People of *Abdera* called *Hippocrates* to cure *Democritus* of Madness; and that when *Hippocrates* came, he found him employed in dissecting various Animals, in order to discover the Nature of the Bile. *Hippocrates* is said to have been charmed with the Man, and to have been much improved by his Conversation. But these Circumstances are not sufficiently attested to deserve our Assent.

Petronius informs us, that he expressed the Juices of all Herbs, and spent his entire Life in making Experiments. Whether these Experiments were performed from a Principle of Curiosity, or with a View to investigate the Properties of Medicines, is perhaps not easily determined: If, however, we may believe *Seneca*, this Author knew the Art of softening Ivory, and of converting small Stones into Emeralds, by boiling them.

Hence some are of Opinion, that *Democritus* was a skilful Anatomist, and a good Chymist; and maintain that he wrote on Subjects of both these Kinds. His Book intituled *περὶ τῆς λίθου*, which perhaps, treated of the Load-stone, they will have to relate to the Philosophers-stone. Some chymical Manuscripts, by some highly extolled, also bear his Name; but the more Judicious confess, that these are the Compositions of some later Greek. This seems to be obvious enough from the Fragments of that Work, which are preserved.

To Authors of this Kind it has, no doubt, been owing, that some Moderns have confidently affirmed, that *Democritus* possessed the Divine Water, or the *Scythicus Latex*, by some called *πῦρ*, by the Assistance of which he could make potable Gold, and the Philosophers-stone. *Schulzius* conjectures very prettily, that this *Scythicus Latex*, by others called *ὕδωρ ζωοποιόν*, is the same with *Aqua Vita*, or inflammable Spirit of Wine, which in the *Sclavonic* Language is called *Korsfolki*, a Word pretty near to the Greek *ζωοποιόν*.

Democritus seems to have been the Author, or at least, the Improver and Illustrator, of the *Corpuscularian* Philosophy, which in the School of *Epicurus* was subtly accommodated to Physic by several, and particularly those of the Methodic Sect, and in our own Days by the *Cartesians*.

Democritus is said to have lived long, and when by a sudden Loss of Strength he perceived Death to be near, he for the sake of his Sister preserved his Life for three entire Days. With what Remedy he effected this, is not universally agreed upon, since some affirm, that it was by the Smell of hot Bread, and others by that of Honey. If this Story is true, *Democritus* had an uncommon Complaisance for his Sister; because the Motive of her desiring him to live a few Days, was only that she should not be in Mourning, and, in consequence of that, lose the Diversion of a certain Festival which was approaching.

We now proceed to more authentic Accounts, and more important Doctrines, relating to Physic, than any which History has hitherto furnished us with, I mean those which we learn from the celebrated *Hippocrates*. I have given his Descent with some other Particulars relative to the Posterity of *Æsculapius*, under the Article *ASCLEPIADÆ*, and a Sketch of his Life under that of his Name. I shall now proceed to his Doctrine, after having observed, that he was born, according to the best Accounts, in the 80th Olympiad, about 460 Years before Christ.

In the following Detail of his Philosophy and Physiology, I must acknowledge my Obligations to Mr. *Le Clerc*, who has with great Judgment and Accuracy extracted them from his Works, and given them so complete, that very little can be added to what he has said.

If *Galen's* Judgment may be taken, *Hippocrates* was no less distinguished among the Philosophers than Physicians. He assures us besides, that *Plato* adopted all the Opinions of *Hippocrates*; that the Writings of *Aristotle* are nothing but Commentaries on the Philosophy of *Hippocrates*; and that *Aristotle* was no more than an Interpreter of *Hippocrates* and *Plato*; that from them he borrow'd his Doctrine of the four first Qualities, *hot, cold, dry, and moist*. *Hippocrates* indeed seems, in some Places, to advance the Notion of these Qualities, where he admits of four Elements, *Air, Water, Fire, and Earth*; at least he opposes, in his Book of the *Nature of Man*, those who acknowledge only one. But in his first Book of *Diet* he establishes another System, where he mentions only two Principles, *Fire* and *Water*, one of which gives Motion to all Things, and the other nourishes them, and supplies them with Matter for Accretion. These Contradictions, and some others, proceed from confounding the Works of *Hippocrates* with several other Pieces which did not belong to him. The Book last cited is one of those which in early Ages passed for supposititious.

What we are more certain of, and what is of the greater Importance, as it nearly relates to Medicine, is, that *Hippocrates*, in almost all his Works, shews that he acknowledged one general Principle, which, *Lib. de Alimento*, he calls *Nature*, which is above all others, and to which he attributes a great Power. "Nature, says he, is sufficient in Animals for all things, or is to them instead of all things. It knows of itself whatever is necessary for them, without being taught, or being under a Necessity to learn of any one." And upon this Footing, as if *Nature* were indued with a Principle of Knowledge, he gives it the Title of *just*. He ascribes to it a Power, (*δύναμις*) or Powers, which are in the Nature of Handmaids. "There is, says he, one Power alone, and there are more than one." It is by these Powers that every thing is administered in the Bodies of Animals, these distribute the Blood, Spirits, and Heat, into all Parts; by which means they receive Life and Sensation." He says, in another Place, "It is the Power which nourishes all things, and makes them grow."

The Manner in which Nature acts, or its most sensible Administration, by the Mediation of the Powers, consists, according to him, partly in attracting what is good or convenient for every Species, and in retaining, preparing, or altering it, partly in rejecting what is superfluous or hurtful, after separating it from what is useful. Upon these Principles almost the whole Physiology of *Hippocrates* is founded, or upon a natural Inclination which every thing has to unite itself with whatever has a proper Relation to it, and to avoid every thing which is contrary; supposing also an Affinity between the different Parts of the Body, from whence they mutually sympathize with one another in those Evils which they suffer, and partake in every good Thing which happens to each Particular, according to the great established Maxim, that all Parts of the Body concur, consent, and conspire together, according to the Animal Oeconomy.

Thus we see what *Hippocrates* meant by the Term *Nature*: He gives no other Description of this Principle of such wonderful Actions, unless it be, that he seems to compare it to a sort of *Heat*, of which he speaks

* *Galen*, in his Commentary on the sixteenth Aphorism of the second Book, thus explains this Sentence. "*Hippocrates*, says he, every-where takes care to preserve this mighty Power, or Virtue, which has the Direction of Animals: whether therefore he calls it *Power* in the Singular, or *Powers* in the Plural Number, it matters not. Thus, in his Book *de Alimento*, he says, "There is one Power, and more than one," meaning, that there is one Power in general, which comprehends many particular Powers."

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after this manner : “ What we call *Heat*, or *hot*, says he, *Lib. de Carnibus*, seems to be something that is immortal, which understands, hears, sees, and knows, both what is past, and what is to come.” At least we see a near Relation between those Effects which he ascribes to this *Heat*, and those which he attributes to *Nature*.

We find in the Book of *Hippocrates* just now quoted, intituled *de Carnibus*, or, according to others, *de Principiis*, something singular enough concerning the Formation of the Universe, and of Animals in particular. He supposes first, that the Production of Man, or his Being, the Soul which is within him, his Health or Sickness, the good or evil Events which befall him, his Birth and Death, all proceed from things elevated above us, (*ἀετέρες*) or celestial Things. By these we might understand the Stars, which, according to this Author, have a mighty Influence upon human Bodies; but he explains himself by attributing all that has been just now mentioned, to that immortal *Heat* before spoken of, which, as we said, is the same thing which in other Places he calls *Nature*.

The greatest Part, says he, of the *Heat* just now described having prevailed at the Time when all Things were in Confusion, it formed what the Ancients called *Æther*. Another Part of this *Heat*, residing in the lowest Place, which we call *Earth*, there became indued with the Qualities of Cold and Dryness, and a great Disposition to Motion. A third Part of this *Heat*, having possessed the middle Space between the *Æther* and the *Earth*, constituted what we call the *Air*, which is also a little hot. Lastly, the fourth Part, which is next to the *Earth*, and the thickest and most humid, formed what is called the *Water*. All these things having been blended together by a circular Motion in the time of the Confusion before spoken of, that Portion of Heat which resided in the *Earth*, being dispersed into different Quarters, and divided into various Parcels, more of it in one Place than another, the *Earth* by that means became dried, and assumed the Form of *Membranes*, or *Coats*; and the Substance inclosed within them being heated, as it were, by a kind of Putrefaction, the fattest and least humid, being soon burnt, took the Form of *Bones*. The viscous, and in some measure cold Matter, which was incapable of burning, produced *Nerves*, or rather *Tendons* and *Ligaments*, which are hard and solid. As to the *Veins*, they were made of the coldest, and of the most viscous Parts of the Matter in Conjunction; for the viscous Part, being torrefied or dried by the Heat, produced the Membranes or Pellicles of which they are composed; and the Part which had nothing of a fat or viscous Matter in it, being dissolved, formed the liquid or humid Substance which they contain. The Bladder, with its Contents, was formed much after the same manner as all the other Cavities.

In those Parts, continues *Hippocrates*, where the viscous Matter prevailed over the Fat, *Membranes* were formed; but where the Fat was predominant, *Bones* were produced. The *Brain* being the Source or proper Seat of a cold and viscid Matter, which the *Heat* could neither dissolve nor burn, first there were formed Membranes on its Superficies, and afterwards *Bones*, by means of a small Portion of Fat, which the *Heat* had torrefied. The *Spinal Marrow* was made after the same manner, being cold and viscous like the *Brain*, and consequently very different from the *Marrow of the Bones*, which, being simply Fat, is not inclosed in a Membrane. The *Heart*, having much of a viscous Substance, became a hard and viscid Piece of Flesh, invested with a Membrane, and hollow; the *Lungs*, which are near the *Heart*, were produced after the same manner. The *Heart*, having by its Heat warmed the most viscous Part of the Humidity, soon dried it, and reduced it to a kind of Froth full of Perforations or Pipes, with many small *Veins*. The *Liver* was formed of a large Portion of hot and humid Matter, which contained nothing fat or viscous in it; so that the Cold prevailing over the Heat, the Humidity became coagulated, or inspissated.

Hippocrates reasons on the same Footing concerning the Production of some other Parts; but the Account before us is sufficient to give us an Idea of his Manner of philosophising on that Head, and will furnish us with this Reflection, that there seems to be no great Difference between this System of *Hippocrates*, and that of *Heraclitus*; that *Heat*, by means of which *Hippocrates* supposes all things were produced or formed, being much the same thing as the *Fire*, which, according to *Heraclitus*, was the Element or Principle of all Bodies. Several Passages might be taken out of the first Book of *Diet* to confirm what has been said; what follows is express to the Purpose. “ In short, says *Hippocrates*, the *Fire* has disposed every thing within the Body in “ Imitation of the Universe.”

This may suffice to give an Idea of his general Philosophical Notions.

We have a brief Account of the Anatomy of *Hippocrates* under the Article *ANATOMIA*, and, as he was very defective in this Part of Knowledge, have perhaps said as much as the Subject deserved. But when we come to consider his Character as a Physician, he demands our highest Attention, calls for our greatest Regard, and deserves to have his Physiology inquired into with the strictest Accuracy, and utmost Impartiality.

Hippocrates, then, makes the human Body to consist of three constituent Principles, the *Solids*, the *Fluids*, and the *Spirits*. These three he elsewhere explains, by calling them the containing, and the contained Parts, and those which excite Motion (*κίνησις*). By that which contains, must undoubtedly be understood the solid Parts, such as the *Bones*, *Nerves*, *Tendons*, *Ligaments*, *Cartilages*, *Membranes*, and *Fibres*. By that which is contained, *Hippocrates* principally understood four Sorts of Humours, *Blood*, *Phlegm*, *yellow Bile*, and *Melancholy*, or *black Bile*. By those which excite Motion, he meant what he otherwise expresses by the Word *Spirit*, which, according to him, is a Substance partaking of the Nature of the *Air*, from which it derives its Origin, and is diffused thro’ all the Body.

With respect to the Humours, *Hippocrates* is of Opinion, that the *Blood* is naturally hot, fluid, of a red Colour, and sweet to the Taste; that the *Phlegm* is cold, fluid, white, viscid, and somewhat saline; that the *yellow Bile* is dry, glutinous and bitter, and extracted from the most pinguious Parts of the *Blood* and *Aliments*; and that *Melancholy* is black, cold and dry, very glutinous, flatulent, and inclined to ferment.

The human Body, according to him, is composed of these four Substances; and it is by them that we either enjoy Health, or are afflicted with Diseases. The State of Health is good so long as these Humours remain in their natural Conditions, with respect to their Quantities, their Qualities, and due Mixtures. The State of Health, on the contrary, is bad when any of these is either in a smaller or in a larger Quantity than it ought to be, when it is kept separate from the rest in any Part of the Body, and when all these Humours are not possessed of the requisite Qualities, or are not mixed in a due and natural Proportion. Health and Sickness may, from what has been said of each, be fully defined; but *Hippocrates* has given us no formal Definition of either, except in one Place, where he calls a Disease, whatever creates Pain or Uneasiness to a Patient. But this is too general to be a just and accurate Definition.

As for the Uses of each particular Humour, he was of Opinion, that the *Blood* in a sound and natural State nourished the Parts, and was the Source of animal Heat, the Cause of a fresh Colour, and of good Health.

Health. He imagined, that the yellow Bile preserv'd the Body in its natural State, hindered the numerous small Ducts, and capillary Vessels, from being obstructed, and kept the Intestines, allotted for the Discharge of the Fæces, open. He also maintained, that it contributed to quicken the Senses, and promote the Digestion of the Aliments. The black Bile was, according to him, the Lees of the other Humours; which serv'd as a sort of Basis to them. The Phlegm, in his Opinion, serv'd to lubricate and facilitate the Motions of the Nerves, the Membranes, the Cartilages, the Joints, the Tongue, and other Parts of the Body.

Besides the four Qualities of Fluidity, Dryness, Heat, and Cold, by *Hippocrates* ascrib'd to the Humours, it appears, from several Passages, that he believ'd them possess'd of a great Number of others, which, in a natural State, were useful, and only became prejudicial, when they acquired a preternatural Energy, degenerated from what they should be, or separated themselves from the rest. "The Antients," says he, in his Book *De Prisca Medicina*, "did not believe that Dryness, Cold, Humidity, or any other Quality of a like Nature, could produce any Disorder in the Constitution; but they were of Opinion, that an Excess of either of these, which could not be surmounted by Nature, was the Source of the several Distempers with which Mankind were afflicted; and their Endeavours were bent upon correcting or removing this Excess. Now, as among sweet Substances the sweetest are the strongest, so among those which are bitter or acid, such as are most so, are most powerful. In a Word, among all Substances of every Kind, that which is most exalted in its Qualities, is the strongest and most efficacious. Substances of this Kind lodg'd in the human Body, were, according to the Antients, the Sources of Pain and Diseases. There really are in our Bodies bitter, saline, sweet, sour, sharp, insipid, and a great many other Substances which assume different Qualities, according to their Quantities or Strengths. These different Qualities are not perceptible, nor productive of Injury, so long as the Humours are duly mixed and blended together. But when the Humours are separated from each other, and remain so, then their Qualities become at once sensible and prejudicial."

From this Passage we may perceive, that *Hippocrates* did not imagine that these Substances acted by what the Philosophers call Primary Qualities, especially since a little after he tells us, "That Heat is not attended with great Force, but four and insipid Substances are, whether internally exhibited, or externally apply'd; whether with respect to Meat or Drink, or external Applications, of whatever Kind." And he concludes, that among all the Qualities of Bodies, none are less powerful than Heat and Cold.

What we have said of the Humours separating from each other, has some Analogy with what *Hippocrates* frequently observes with respect to the Humours being put into a Commotion. He sometimes expresses this Commotion by the Word *ἔκτασις*, which implies an Impetuosity resembling the peculiar Motions of certain Animals, when violently stimulated by Nature to the Propagation of their Kind.

In some other Passages *Hippocrates* seems to ascribe the Origin of Diseases only to the Bile, and the Phlegm: And Disorders are, according to him, produc'd when these two Humours mix themselves with the Blood, when they are faulty either with regard to Quantity or Quality, or happen to be lodg'd in Places where they ought not naturally to be. But as he elsewhere speaks of two Sorts of Bile; these, with the Phlegm, make three Humours, which, when added to the Blood, make four in all.

In other Passages he makes mention of a fifth Humour, which is Water; and of which he affirms the Spleen to be the Source, as the Liver and Brain are of the Blood, the Bile, and the Phlegm. Some Commentators are of Opinion, that this Water is the same thing with Melancholy, and that *Hippocrates* uses them as convertible Terms: However, their Sentiment does not appear to be easily reconcilable with the Idea he form'd of Melancholy, which he consider'd as the Lees of the other Humours, and consequently little analogous to Water. Nor do they give a more satisfactory Account of the thing, who maintain, that there are two Kinds of Melancholy, one of which is that already described, and the other that which ought to be rather call'd black Bile, which is nothing but the yellow Bile supposed to be blacken'd, and render'd excessively hot; for such a Substance has nothing in common with Water. But what seems to support and give Credit to this Sentiment is, that, in the same Passage, this Water is affirm'd to be the most weighty Humour in the human Body. Besides, we may with Reason assert, that this is a different System from that of *Hippocrates*, since the Books *De Morbis*, where this Water is mentioned, were by the Antients ascrib'd to *Polybus*, Son-in-Law to *Hippocrates*.

This Water may also be analogous to what *Hippocrates* elsewhere calls *Ichor*, by which is commonly understood every clear and aqueous Humour in the human Body, whether in a sound or a valetudinary State. But *Hippocrates* seems rather to restrain the Name *Ichor* to the clear and limpid Parts of such Humours as are in a preternatural State, and corrupted; for he gives the Name of *Ichor* to that Species of Sanies which flows from malignant Ulcers, and which is clearer than good Pus ought to be. In some Passages he also makes mention of acrid, bilious, and burning Ichors.

We find, also, another System, with respect to the Causes of Diseases, in that Book intituled *Περὶ τριτοῦ*, which, though dignified with the sacred Name of *Hippocrates*, is yet by many thought to be none of his. The Author of this Work sometimes uses the Word *πνεῦμα*, and sometimes *ἀέρας*, with this Difference, that one of these Words imports the Air or Wind shut up within the Body, whereas the other is restrain'd to the external Atmosphere, from which he nevertheless pretends that the Air within the Body is supply'd by means of Respiration, and the Air contained in the Aliments deriv'd. From this Book it appears, that he looks upon the Air or Wind to be the true Cause of Health or Sicknes, rather than the Humours, which in this Case he takes to be no more than concurring Causes, inasmuch as the Air mixes with them. But this last Sentiment may be reconciled with that already mentioned, and ascrib'd to *Hippocrates*, with respect to the Effects of the Humours, by saying, that all they are observ'd to do with regard to Health and Diseases, suppose a previous Impulse of the Air, as a kind of *Primum Mobile*; and that for this Reason *Hippocrates* calls it what excites Motion.

According to *Hippocrates*, there are as many external Causes of Health and Sicknes, as there are Objects without the Body capable of acting upon it. Health and Sicknes are likewise influenced by Regimen, and all the several Accidents which occur during the whole Course of a Man's Life. As it is so, we must readily perceive, that Health and Diseases depend in general on the following Causes: The Air, what we eat, what we drink, Sleep and Watching, Exercise and Rest, Retention and Excretion, and, last of all, on the Passions of the Mind. We may also rank among the external Causes of Health and Diseases, the Action of extraneous and foreign Bodies, which are sometimes useful, but may also prove injurious and prejudicial to us. Among this last Class of Causes are Poisons, and venomous Animals.

Hippocrates found a kind of Analogy and Relation between some of the internal and external Causes now mentioned; he compared, for Instance, the four Humours with the four Periods of human Life, the four Seasons of the Year, and with those Climates and Countries which are hot, cold, dry, or moist. He imagined that Infancy or Childhood, the Spring of the Year, and temperate Climates, must necessarily produce Blood, and consequently

consequently such Disorders as arise from too large a Quantity of it, rather than Distempers which depend upon the other Humours. Youth, the Summer, hot and dry Countries, are, according to him, proper for generating Bile, and all the Diseases produc'd by it. Manhood, the Autumn, and Places where the Air is thick and unequal, contribute to the Formation of Melancholy, and the Train of gloomy Disorders arising from it. And, lastly, old Age, Winter, cold and moist Countries, produce Phlegm, and phlegmatic Disorders. He also carefully examin'd what particular Aliments produce Blood, Bile, or any of the rest of the Humours. He considers the Effects of Sleeping and Watching, of Exercise and Rest, and the other external Causes, with respect to the four Humours, and the Advantages reap'd, and the Injuries generally sustain'd, by them.

Among all these Causes of Health and Diseases, the most extensive and general, according to *Hippocrates*, are the Air, and the Aliments, both which he examines with the utmost Accuracy and Attention possible; for he has wrote several Books upon Aliment, and taken particular Pains to distinguish what is good from what is bad, and what is proper from what is improper, according to the several States and Conditions of People. To this he was so much the more oblig'd, because his Method of treating Diseases turn'd almost entirely on the Choice of Aliment, as well with regard to the Quality as the Quantity, and proper Times of using it.

He attributed also a great deal to the Air, and what depends upon it. We have already seen what he thought with regard to the four Seasons, and the Difference of Climates. He also examined the common and extraordinary Winds, the Irregularities of the Seasons, the Rising and Setting of the Stars, the Times influenced by certain Constellations, such as the *Dog-star*, *Arcturus*, and the *Pleiades*. He also consider'd the Solstices and Equinoxes, because he believ'd that all these produc'd great Changes in Diseases; but he does not explain how these Changes are brought about.

From what has been said we may infer, that *Hippocrates* look'd upon a Knowledge of Astronomy, as a necessary Qualification in a Physician; and was convinc'd, that the Stars have some Influence on the human Body. This corresponds to what he elsewhere says of the heavenly Bodies, which he reckons among the Causes of Disorders; and agrees with that celebrated Passage, where he asserts, That our Life, our Health, our Death, and every thing relating to our Being, depend upon things above us. And in all Probability he had something of a like Nature in View, when he speaks of a *θεῖον τι*, or something divine, as the Cause of Diseases. Some of the most antient Commentators on his Works have imagin'd, that when he spoke in this manner, he alludes to what has been said on this Subject by the Poets, especially by *Homer*, who attributes certain Diseases which afflict Mankind, to the Wrath and Displeasure of the Gods. But *Galen* is not of the same Opinion with these Commentators, and justly observes, "That they who interpret or comment upon an Author, ought not to write every thing which to themselves appears to be true, or what they think the Author ought to have believ'd, but only what is strictly agreeable to his Sentiments, even though it should be false." Now *Galen* maintains, that there is none of the Works of *Hippocrates*, in which the Causes of Diseases are ascrib'd to the Gods. Besides, he proves that *Hippocrates* was not really of this Opinion, first, from his manner of accounting for the Symptoms of a Disease he describes, and calls it by the same Names it usually went under in his own Days. They who were seiz'd with it, were said to be *struck*, probably from a false and groundless Notion of the People, that Patients labouring under it were *struck*, as with a Thunderbolt, by some Divinity: But *Hippocrates* expressly observes, that the Antients did not give this Epithet to those who were seiz'd with this Disorder, for any other Reason, but because after their Deaths their Sides were found livid and bruised, as if they had received Blows. Secondly, he proves his Opinion, from a Book of *Hippocrates*, *De Morbo Sacro*, where that antient Physician endeavours to root out of the Minds of the Vulgar, the Notion of the Gods being the Authors of Diseases.

But to return to the Meaning of what *Hippocrates* called *divine* in Diseases, the same *Galen* concludes, that this Physician meant no more by it than the Constitution of the Atmosphere: But this does not determine the Question, since such may be the State of the Air, that we may find something extraordinary in it, and consequently something we may call *divine*. This is the real Sentiment of some of the modern Commentators on *Hippocrates*, who imagine, that the *θεῖον τι* of this Author, depended upon certain occult Qualities of the Air, which neither resemble its known and obvious Qualities, nor any other Quality whatever. But this is not the Sense of *Galen* in that Passage, nor of *Hippocrates* himself, who seems to declare against this Opinion, when in his Book *De Morbo Sacro*, or *Epilepsy*, he tells us, that "this Disorder draws its Origin from the same Causes which produce other Diseases, that is, from things subject to Changes, such as the Cold, the Sun, and the Winds, which undergo perpetual Vicissitudes. Now, continues he, though these things are all the Effects of divine Institution and Appointment, yet we have no Reason to look upon this Disease in particular as divine, since all Diseases ought to be at once both human and divine."

It may perhaps be said, that it has been doubted if *Hippocrates* was Author of this Treatise. But if we reflect on the constant Custom of *Hippocrates*, in exactly pointing out the Constitution of the Seasons, in or after which the Diseases he intends to describe have appeared, we shall see, that of whatever Disease he intends to treat, those of the pestilential Kind not excepted, he only makes mention of the common and ordinary Changes of the Air, with respect to Heat or Cold, Dryness or Humidity. He observes, for Instance, that a rainy Spring has been preceded by a wet Winter, or followed by a scorching Summer; that such or such Winds have blow'd, without saying a single Word of any other particular or occult Qualities of the Air, which are supposed to produce extraordinary Diseases.

'Tis true there are some other Passages of his Works said to lay a Foundation for the occult Qualities already mentioned, and which *Galen* himself, as well as the above-named modern Authors, believ'd. First, then, in his Book *De Alimento*, the Words *αἰὲρ ἀφανής*, or *occult Cause*, occur. *Galen* maintains, that when *Hippocrates* speaks of epidemical Diseases, which, he says, proceed from the Air, or what we breathe, being impregnated with unwholesome Exhalations proper to breed Diseases, he insinuates, that these Exhalations do not act by ordinary Qualities, but by some hidden and inexplicable Properties. But I cannot find, that *Hippocrates* has explained himself with regard either to these Exhalations, or the Influence of the Stars, and the particular Manner in which they act upon terrestrial Bodies; though, as we have already observ'd, he takes their real Action upon them for granted. These Exhalations seem to be the same with what in his Book *De Flatibus*, he calls *νέμεσις*, contagious Impurities, or Infection. I shall put an End to what relates to the Causes of Diseases, by observing, that in the same Passage wherein *Hippocrates* endeavours to make epidemical Diseases proceed from the Air, he attempts to prove, that they are not produc'd by the Aliments, as other Diseases are. From what has been said we see, that, according to *Hippocrates*, the Air is the most extensive and general Cause of Diseases.

The Humours and the Air being, as we have seen, the Causes of Health and Diseases, the solid or containing Parts, which make the third Species of Substance of which animal Bodies consist, must be the Subjects affected, since they are observ'd to be sound or indisposed, according to the good or bad Dispositions produc'd in them by the

the Humours, and the Air, and according to the advantageous or injurious Impressions made on them by external Objects. This Consequence may be drawn from the following, and some other Passages of *Hippocrates*: “When,” says he, in his Book *De Natura Hominis*, “any one of the Humours is separated from the rest, it necessarily follows, that the Part whence it came must be disorder’d, and that the Part to which it flows in too large a Quantity, must endure Pain and Torment.” In another Passage of the same Book he informs us, that “those Diseases which proceed from the most considerable Parts of the Body, are the most dangerous; for,” continues he, “if a Disease must remain in the Part where it began, when a noble Part suffers, the whole Body must be proportionably afflicted.”

As for the Differences of Diseases, we find nothing full upon this Subject in *Hippocrates*: However, we may gather from his Works, that the different Causes mentioned, and the different Parts of the Body which are affected, produce so many different Disorders, as he informs us, in that celebrated Passage, in his Book *De Alimento*. “The Differences,” says he, “of Diseases depend upon the following things, Aliments, the Air, Heat, the Blood, the Phlegm, the Bile, and all the Humours; as also on the Flesh, the Fat, the Veins, the Arteries, the Nerves, the Muscles, the Membranes, the Bones, the Brain, the Spinal Marrow, the Mouth, the Tongue, the Throat, the Œsophagus, the Stomach, the Intestines, the Diaphragm, the Belly, the Liver, the Spleen, the Kidneys, the Bladder, the Matrix, and the Skin.”

Among these Diseases, *Hippocrates* look’d upon some as mortal, and upon others as only dangerous; whilst others were very easily cur’d, according to the Cause which produc’d them, the Part affected, or the Constitution of the Patient.

He also makes another general Difference of Diseases with regard to the Time of their ordinary Duration, when he distinguishes them into acute, or short and violent, and such as are chronical, or of long Duration; and all this with respect to the several Causes already mentioned, since, according to him, acute Disorders are produc’d by the Bile, and the Blood; and that in the Flower of Youth, in the Spring, and in the Summer. Those of a chronical Nature are, on the contrary, produc’d by Phlegm, and black Bile, and that in old Age, and during the Winter. Of the former Class of these Disorders some are more and some less acute: This holds also true of those which are chronical, and of a longer Duration.

Hippocrates also distinguished Diseases with regard to the Places in which they rag’d, either generally, or at particular Seasons. Those which were familiar and common to certain Places, he called endemic; and such as rag’d sometimes in one Place, and sometimes in another, and with which many were equally seiz’d, during a certain Space of Time, he call’d epidemic Disorders, such as the Plague, the most terrible not only of this, but of all other Classes of Diseases. He constituted a third Genus of Diseases opposite to the preceding, and distinguished them by the Name *sporadics*, or dispersed Diseases, including under that Name all the Diseases of different Characters which attack different Persons indifferently at any Season; in a Word, all the common and ordinary Diseases, some of which are of one Kind, and some of another.

He also made a Distinction between those Diseases which are hereditary, and brought into the World with us; and those which are afterwards produc’d by any Accident whatever.

Lastly, he look’d upon some Diseases as of a mild and benign, and others of an obstinate and malignant, Nature. The former Class of these Disorders was easily and most frequently cur’d, but the latter created a great deal of Trouble to the Physician, and often baffled his Skill, and put an End to the Patient’s Life, in spite of all his Medicines.

Hippocrates extended his Views still farther, and consider’d the Changes which happen in Diseases with regard to four different Periods, that is, the *ἀρχή* or Beginning, the *πρὸς αὐξάνειαν* or Augmentation, the *ἀκμή* or Height, and the *κατάστασις* or Decline of the Disease. But the Word *Decline* is only applicable to such Disorders as terminate happily; for in others Death ensues instead of the Decline. The third Period, or Height of the Disease, is, then, succeeded by the most considerable Change; for it decides with respect to the Life or Death of the Patient. This is generally, or at least more frequently, brought about by a *Crisis*; by which *Hippocrates* meant no more than every sudden Change which happens in a Disease, whether for the better, or the worse; whether the Cure follows immediately, or some time after. This Change is, according to him, produced by Nature herself, who, as it were, sits in Judgment, and either acquits or condemns the Patient, by a favourable or unfavourable Crisis. But that we may the better understand his Meaning, we must advert to the Idea he affixes to the Word *Nature*, which is that of a Principle, which governs and presides in the animal Œconomy. If then Diseases consist in a Disorder or Perturbation of this Œconomy, as we may gather from what has been said concerning their Causes, Nature and Diseases must always be mutual Antagonists. But as in the Struggle they have with each other, Nature is, as it were, both Judge and Party, she must frequently have the better; for which Reason the Word *Crisis* is most commonly taken for a favourable Determination of Nature, which puts a happy Period to the Disease.

The Manner in which Nature acts upon this Occasion, in order to destroy her Enemy, is by reducing the Humours, whose Disorder occasions that of the whole Body, to their natural State, with regard to their Quality and Quantity, their Mixture and Motion, the Places they possess, and every other Particular with regard to which they may be faulty. Among the several Means employ’d by Nature for this Purpose, *Hippocrates* laid the greatest Stress upon what he calls *καταρσις*, or the Concoction of the Humours. This is her first Design; ’tis by this Concoction she renders herself Mistress, and brings things to a favourable Termination. The Humours being reduced to this State, whatever is superfluous or hurtful is spontaneously discharged, or at least may easily be eliminated, by proper Medicines. When what is superfluous is evacuated, which happens either by a Discharge of Blood, a Flux of the Belly, Vomit, Sweat, a Discharge of Urine, Tumors, Abscesses, the Itch, Eruptions, Pustules, or Spots in the Skin, Nature easily reduces other things to the same State and Condition in which she found them before the Attack of the Disorder.

But it must be observed, that these Evacuations are not, by *Hippocrates*, look’d upon as the Effects of a true and genuine Crisis, except when they are made in a considerable Quantity, small and scanty Evacuations being, according to him, insufficient to produce a happy *Crisis*; on the contrary they intimate, that Nature is burdened with a Load of Humours, which she suffers to come away for want of Power to retain them, because they prove a continual Stimulus to her. In this Case what is discharg’d is crude, because the Disorder is as yet at its Height; and so long as Matters remain in this Situation, we can only hope for a bad or imperfect Crisis, which either denotes the Triumph of the Disease, or that its Strength is equal to that of Nature. The Result of this is either Death, or a Protraction of the Disease. In this last Case Nature has often time to attempt a new Crisis, more favourable than the former, after having made more fresh and vigorous Efforts to promote the Concoction of the Humours.

'Tis of Importance to observe, that, according to *Hippocrates*, this Concoction of Humours cannot be perfected, but in a certain time, just as Fruit, which requires a certain time to bring it to Maturity; for he compares the Humours concocted by Nature, to Fruit that is perfectly ripe. The Time requisite for this Concoction is regulated by the Differences of Diseases. In such Disorders as *Hippocrates* calls very acute, the Concoction is perfect, and the Crisis made on the fourth Day. In those which are only acute, these favourable Circumstances do not happen till the seventh, sometimes the eleventh, and sometimes the fourteenth Day, which is properly the longest Time assign'd by *Hippocrates* to Disorders of the truly acute Kind; though in some Passages he seems to extend the Time to the twentieth and twenty-first, and sometimes to the fortieth and sixtieth Day.

All Disorders which exceed this last Number of Days, are class'd among those of the chronic Kind. And whereas in those which do not exceed the fourteenth, or at most the twentieth Day, every fourth Day either produces a Crisis, or is at least a remarkable Day, by which we can determine whether there will be a Crisis on the fourth Day following, and whether it will be favourable or not; so in those Distempers which are protracted from the twentieth to the fortieth Day, *Hippocrates* reckons no longer but by every seventh Day; and in those which pass the fortieth Day, he begins to reckon upon each twentieth Day, as appears from the following Progression, which contains the Days expressly mark'd by *Hippocrates*, the first of which is the fourth; from which he passes to the seventh; then to the eleventh, the fourteenth, the seventeenth, and the twentieth; from which he passes to the twenty-seventh, and the thirty-fourth; and from this last to the sixtieth, the hundredth, and the hundred and twentieth. After this last Term, the critical Days are no longer reckon'd; and as those Diseases which are protracted to the hundred and twentieth Day have their Crisis regulated by the Number of Days, so those which exceed that Term, are only consider'd with respect to the general Changes of the Seasons; so that some terminate about the Equinoxes and Solstices, and others at the Rising or Setting of the Stars and Constellations already mentioned: Or if Numbers are still to come into the Account, the Reckoning is made by Months, and even by whole Years. On the same Principles *Hippocrates* supposes, that some Diseases of Children come to a Crisis in the seventh Month from their Nativity; and others only in their seventh, or perhaps their fourteenth Year.

We have one Remark more to make concerning the twentieth and twenty-first Days, which is, that both are equally distinguish'd as critical Days in different Places of our Author's Works. The Reason he gives in one of those Places why he prefers the first of those Days to the other, which makes up three complete Septenaries, "is, because the Duration of a Distemper is not to be reckon'd by complete Days, since neither the Years nor the Months consist of such." But this Reason does not hinder him from marking, in other Places, the one-and-twentieth for a true critical Day, as indeed he does almost all odd Days, which appear to him so well disposed for a Crisis, that he says, in one of his Aphorisms, "Sweats which begin on the third, fifth, ninth, eleventh, fourteenth, seventeenth, twenty-first, twenty-seventh, thirty-first, and thirty-fourth Day of a Fever, are good; and that those which happen on other Days prognosticate great Trouble and Danger to the Patient; and that the Disease will be long, and subject to Relapses." And in another Aphorism he says, in express Words, "That a Fever which leaves the Patient on any but an odd Day, is commonly subject to a Return." *Galen*, in explaining this Passage, pretends, that instead of *odd Day*, we should read *critical Day*; but he might have spar'd his Criticism, for the same thing is found in some other Places, as in the second of the *Epidemics*, where there is a Passage parallel to that just quoted; and another which says, "That they who die of a Disease, necessarily die in one of the odd Days; and if the Disease be long, in a Month or Year that falls out of an odd Number." We have more on the same Subject in the fourth Book of Diseases, where what has been just now said of odd Days is looked upon as a generally receiv'd Notion; and therefore if any one should object, that this Book was not written by *Hippocrates*, but by *Polybus* his Son-in-Law, the Proof would lose nothing of its Force; for the Author does not deliver it as his private Sentiment, but the general Opinion of Mankind.

Galen was obliged to declare against odd Days, for the same Reason that he rejects every thing which concerns the Dignity of the Number *Seven*, and other Numbers, which were look'd upon by the *Pythagoreans* to have some sort of Value in them, and to be more perfect one than another, after the manner before spoken of. And though he agrees that *Crisis* happen in Septenaries, it is not by virtue of the Number *Seven*, but by the Influence of the Moon, which governs the Weeks that are composed of seven Days. I know not whether *Hippocrates* thought upon the Influence of the Moon upon this Occasion; but what he says in one of his Books before cited, "of an Harmony which results from the Conjunction of certain Numbers more perfect and entire than others," plainly shews, that he had espoused the Opinion of *Pythagoras*; and of this *Celsus* was very sensible, when he says, that "the Numbers of the *Pythagoreans* were formerly much celebrated, and were the Cause that the antient Physicians fell into Errors." Here it is plain that he had an Eye to *Hippocrates*.

But whatever Opinion *Hippocrates* might entertain concerning the Power of odd Days, and other critical Days, before indicated, he does not scruple to acknowledge that the thing sometimes varies. This appears by an Example brought by himself, of a salutary Crisis, which happen'd on the sixth Day of a Disease; and of another of the same Nature, which fell out on the fifteenth; but these are rare Cases, and are no Hindrance to the Establishment of his general Rule.

We must not, on this Occasion, forget to observe, first, that *Hippocrates* did not pretend that all Diseases terminated universally in Crisis; but he was nevertheless of Opinion, that they could not without these terminate securely; and that when a Cure was perform'd without a Crisis, the Patient was subject to Relapses. Secondly, we must observe, that besides these Changes in Diseases, in Consequence of which the Patient either dies, or is cur'd, *Hippocrates* often speaks of another Change, which is, when the Disease, instead of terminating, only changes its Species; as when a Pleurisy becomes an Inflammation of the Lungs, or an Ophthalmy a Phthisis, or when a Cancer of the Breast becomes one of the Uterus. Changes of this Kind are produced when the material Cause of the Disease is removed from one Part to another.

Whatever Opinion we may entertain of the general Philosophy and Physiology of *Hippocrates*, in which, by the way, we find nothing so extravagant and trifling as in many modern Theories, founded, as is boasted, on anatomical Discoveries, and mechanic Principles, a Physician must have practised his Profession with very little Improvement to himself, and Advantage to his Patients, if he has not, in almost every Case he has attended, observed the extensive Usefulness of the Doctrine relating to the Concoction of the Humours, and Termination of Diseases. But the Reputation *Hippocrates* gained was principally owing to his exact Observation of the most minute Circumstances of Diseases, and the Care he took to give us a Detail of what preceded them, the Symptoms with which they were attended, what afforded Relief, and what exasperated the Disorder. This is, properly speaking, to give the History of a Disease; and by following this Method, *Hippocrates* not only learned to distinguish one Disease from another, by the Symptoms peculiar to each Species of Disorder, but he

also acquired a surprising Dexterity at predicting Diseases before they happen'd, and determining their Events when they really seized the Patient, by comparing the Diseases which attack'd different Persons, and the Symptoms which generally preceded or followed them. He seems, in some Passages, to insinuate, that he himself was the first who proceeded upon these Principles, and taught the Manner of foretelling the Event of a Disease, or making what we commonly call the Prognostic. On this Account all Antiquity ador'd him, and was persuaded, that the Physician who from certain Symptoms of a Disease could tell the Patient every thing that happened, and who could even recount the Circumstances the Patient had omitted, and foretel how a Disease would terminate, was a real Judge of the State of the Patient, and deserv'd to have a great deal of Confidence reposed in him. And as it is not always in the Power of a Physician to save his Patients, he may, at least, save his own Character, by making a just Prognostic. *Hippocrates* was so well acquainted with Symptoms, that this Branch of Physic might be said to be his Master-piece: And *Celsus* justly observes, that whatever Improvements later Physicians may have made, yet they were still obliged to adhere to *Hippocrates*, in what he deliver'd with regard to Symptoms. All his Works are full of Observations relating to the Symptoms of Diseases; but they are in a particular manner collected and reduced into a Body in his Aphorisms, his Prognostics, his Predictions, and *Coacæ Prænotiones*. *Galen* is not of Opinion, that the two last of these Works belong to *Hippocrates*; because they are full of Blunders and Imperfections: He also adds, that whatever is good and valuable in them, has been taken from the two first, and from his Epidemics. But this Circumstance has not hindered Numbers of learned Men from commenting upon them, and holding them in the highest Esteem. Before a Prognostic can be depended upon, one must have observ'd it to hold universally, or at least for the most part; for one or two Observations are of no considerable Moment. This cannot be said of all the Prognostics of *Hippocrates*, since some of them seem to be no more than Observations made by certain Persons, who observed what happened from the Beginning to the End of a Disease; and comparing what Symptoms occur'd in the first Stage, with what appear'd at the termination, drew Prognostics accordingly. This *Galen* seems to insinuate, when he affirms, that some Prognostics have been taken from his Epidemics. 'Tis possible *Hippocrates* might have thought, that the Method of succeeding in this Particular, was to examine the Histories of Diseases related by the best Physicians, and to draw such Consequences from them, as made most for his Purpose. This, to be sure, was a very proper and rational Method of going to work; but to prevent the Danger he was in of falling into Mistakes, he must have collected an infinite Number of Observations upon each Disorder, with a View to find parallel Cases in every Species of Disease; so that we might with Justice affirm, that when such a Set of Symptoms appear, the Patient must die; and that when others appear, he recovers. If, for Instance, among twenty Patients labouring under continued Fevers, fifteen or eighteen who have discharg'd a few Drops of Blood at the Nose, and had a little Sweat only on their Heads and Breasts, have died; and if among twenty who have had a plentiful Discharge of Blood, and a large and universal Diaphoresis, fifteen or eighteen have recover'd, we may from these Circumstances conclude, that the former Symptoms are fatal, and the latter salutary. But 'tis not probable, that they who have collected these Prognostics, and especially the *Prænotiones Coacæ*, have always taken care to have a sufficient Number of Examples of the Cases they propose. The Life of one Man is not sufficiently long for this Purpose, as *Hippocrates* himself acknowledges. The Advantages this Physician enjoy'd in this Particular were very singular; for he supply'd the Defects of his own Experience by that of the *Asclepiadæ*, his Predecessors, who were, in all Probability, capable of making Observations justly, the Difficulty of which *Hippocrates* confesses to be so great, that he affirms we may very readily be deceiv'd, especially with respect to Prognostics. The Predictions, says he, with regard to acute Distempers, are uncertain; and we cannot precisely determine whether the Patient shall die or live. He not only draws his Indications from the component Principles of the human Body, in order to predict Diseases, and their Events, but he considers the natural Functions, the Actions, the Habitudes, and Customs, of each Patient. He also takes a View of what happens before the Disease, and during the Time it rages; of what is produc'd by our own Negligence, or that of others; by the interior Disposition of our Bodies, or by the external Objects which surround us. All these Circumstances furnish'd *Hippocrates* with Symptoms, by which he was enabled to judge of People's State and Condition, with respect not only to present, but also future Disorders.

The first thing *Hippocrates* consider'd, especially in acute Diseases, was the Visage of the Patient. It was, according to him, a good Sign, when the Patient had the Countenance of a healthy Person; and accordingly as it receded from this State, there was a proportionable Danger. He gives us the following Description of the Visage of a dying Person. "When," says he, "the Patient has a sharp Nose, sunk Eyes, hollow Temples, cold and retracted Ears, the Skin of the Forehead hard, tense, and dry, and a livid or leaden Colour, we may be sure Death is not at a great Distance, unless the Patient has been exhausted by long Watching, by a Flux, or long Fasting." This by Physicians is call'd the *Facies Hippocratica*, in order to denote, that the Observation was made by him. Fallen, relaxed, and cold Lips, are elsewhere look'd upon, by the same Author, as a Symptom which predicts the same Event. This Physician drew his Indications also from the Eyes in particular. When a Patient cannot support the Light, sheds Tears involuntarily, and in his Sleep discovers a Part of the White of his Eyes, these are unfavourable Symptoms, especially the latter, except when the Patient has a Habit of doing so, or labours under a Flux. Dull Eyes are also a Preface of Death, or of a great Loss of Strength. Sparkling, fix'd, and ghastly Eyes, denote either a present, or an approaching Delirium, and Phrensy. When the Patient sees something red like Sparkles, or like Lightning, passing before his Eyes, it is a Sign of a subsequent Hæmorrhage, or Loss of Blood, which often happens before the Crisis, which ought to be made in this Way.

The Patient's manner of lying also indicates his State and Condition. If he lies on one Side, with his Neck, his Arms, and Limbs, a little retracted, this is a good Sign, because 'tis the Posture of a Person in Health. On the contrary, if the Patient lies on his Back, with his Arms stretched out, and his Limbs extended, and especially when he slides or slips towards the Feet of the Bed, this is a Sign of Decay of Strength, and of approaching Death. When a Patient lies upon his Belly, this, unless he is accustomed to do so when well, indicates a Delirium, or a Pain of the Belly. When Persons labouring under burning Fevers are always feeling for something with their Hands, and putting them to their Eyes, as it were to take away something that passes before them: When they move their Hands over the Bed and Cloaths, as it were to seek for something, or to pick the Flocks of Wool out of them, all these are Signs of a Delirium, and of Death. When a Patient naturally silent begins to speak more than he usually did, or when a great Talker becomes silent, this Change is itself a kind of Delirium, or at least denotes the sudden Approach of one, and is accordingly by *Hippocrates* mentioned as a Sign thereof. The Subculta, or convulsive Motions of the Tendons at the Wrists, also preface a Delirium. As for the different Sorts of Deliriums, *Hippocrates* dreaded the Consequences of those most which turn'd upon Subjects of a gloomy and terrible Nature; but thought those less dangerous, which were accompany'd with Gaiety and Pleasantry.

santry. A frequent and uneasy Respiration imports either the Pain the Patient suffers, or an Inflammation of the Parts above the Diaphragm. A long Respiration, or such as requires a great deal of Time, is a Sign of a Delirium; but an easy and natural Respiration is always a happy Symptom in acute Disorders. 'Tis obvious *Hippocrates* depended very much upon the Signs drawn from Respiration; since, in several Passages, he is at singular Pains to describe the different Manners in which the Patients respire. Thus he mentions an uneasy, a slow, a great, and a small Respiration; a Respiration which is great or long *outwardly*, that is, in the Time of Expiration; a Respiration which is small and short *inwardly*, that is, when the Breath is drawn in; a Respiration which is, as is were, doubled, and some other Kinds. Continual Watchings in acute Disorders denote either present Pain, or an approaching Delirium. All the Excrements of the human Body also supply'd *Hippocrates* with Signs, upon which he very much depended. He was very careful in examining the Urine, the Fæces, the Wind discharg'd, the Sweat, the Spit, the Saliva, Excrements of the Nose, the Tears, the Wax of the Ears, and the Pus of Ulcers; and all these he look'd upon as things from which he might draw the most certain Signs with regard to the State and Disposition of the Humours. But these Circumstances lay us under no Obligation to believe *Cælius Rhodiginus*, when he tells us, that *Hippocrates* was so fond of improving in his Profession, that he was not ashamed to taste the Excrements themselves. If any one before this Author has asserted this Circumstance concerning *Hippocrates*, it has undoubtedly been with a View to turn this great Physician into Ridicule.

Hippocrates, indeed, examined all these Substances with regard to their Qualities, that is, their Colour, Smell, and Consistence, the extraneous or extraordinary Matter they contained, their Heat, their Coldness, and their sharp and acrid Quality. He also examined them with respect to their Quantity, the Places whence they were discharged, the Time they had been retained, the Manner, and other Circumstances, with which they were evacuated. 'Tis not to be denied, but he judg'd of some of these Substances by the Taste, but then he depended upon the Patient's, and not upon his own Taste. He drew, for Instance, certain Indications from saltish or sweet Spit; from the Sweat, the Tears, or Excrements of the Nose which were either saltish or sour. The Wax of the Ears is, indeed, according to him, sweet in such as are a dying, or will not recover from their Disorder; but bitter in those who will escape. Except this, there is not a single Case in which the Patient may not be made to judge of the thing himself. But nothing hinders the Physician who looks upon this as a material Circumstance, from making those who are nearly interested in the Patient, or such as are employed in the lowest Services of Life, to try the Experiment. In another Passage, *Hippocrates*, speaking of the Excrements of the Belly, says, that in certain Cases they are, as it were, saltish. In another Passage he makes mention of a Fever, which he calls *Salt*. But, with respect to this, *Galen* observes, that tho' Salt is generally discovered by the Taste, and not by the Touch; yet the Physician, in feeling the Pulse of such a Patient, finds something rough and stimulating, as if he applied his Hand to Flesh that had been salted, or soaked in Brine. I am really of Opinion, that certain Species of Salts may be discovered by the Touch, and that the Salt of the Excrements mentioned in the first Passage may be known by the Manner in which the Anus is stimulated when the Fæces are discharg'd. But in this Case the Patient is Judge, and not the Physician.

Among all the Excrements, the Urine and the Fæces supplied *Hippocrates* with the largest Number of Prognostics, with regard almost to all Diseases. The best Urine, according to him, is that whose Sediment is white, soft, and smooth. When the Urine continues thus thro' the whole Disease till the Crisis happens, the Patient runs no Risque, and is soon cured. This *Hippocrates* called a concocted Urine, or such as imported the Concoction of the Humours. He observed, that this Concoction did not often appear to be full and complete, except on the critical Days, which give a lucky Termination to the Disease. There is a Necessity, said he, for comparing Urine with the Pus which flows from Ulcers. As the Pus, which is white, and possessed of the Qualities of such Urine as we have mentioned, is a Sign that the Ulcer is nearly cured; so the Pus, which is of a different Colour from white, and of a bad Smell, is a Sign, that the Ulcer is malignant, and consequently to be cured with Difficulty. Just so all the Urines which are like those we have already described, are good, whilst all others are bad, and only differ from each other in Degrees. * The first Species never appears till Nature has got the better of the Disorder, and is an Indication, that the Humours are concocted, without which a Cure cannot reasonably be expected. But Urine of the latter Species is discharged, so long as the Crudities subsist, or so long as the Humours are not concocted. Among Urines of this last Species, the best are such as have a reddish Colour, with a soft and smooth Sediment. These denote that the Disease will be somewhat long, but not dangerous. The worst Species of Urines are such as have a high-red Colour, and are at the same time clear, and without Sediment; and such as, when just discharg'd, appear confused and turbid. Urines have also sometimes a certain Cloud suspended in them. In proportion as this Cloud is at a greater or smaller Distance from the Bottom of the Vessel, or differs from the Colour of which the Sediment should be, the larger or smaller Quantity of Crudities is contained in the Body. Urines which are white and clear like Water, also denote great Crudities, and sometimes a Translation of the Bile to the Brain. Those Urines which are yellow, or reddish, denote too large a Quantity of Bile. Urines which are black, are worst of all, especially if they have a disagreeable Smell, or are either entirely thick, or entirely limpid. Urines whose Sediment resembles coarse Meal, Bran, small Laminæ or Scales, are bad Prefages, but especially the last, since by this means we may be assured of the bad Disposition of the Bladder and Kidneys. The Fat which sometimes swims at the Top of Urine in form of a Spider's-web, denotes a Consumption of the Flesh and Solids. A Discharge of a large Quantity of Urine is a Sign of a Crisis.

We must not forget to observe, that *Hippocrates* compared the State and Disposition of the Tongue with that of the Urine; that is, if the Tongue was yellow, and coloured with Bile, the Urine must be of the same Colour; and on the contrary, when the Tongue is red and moist, the Urine is of a natural Colour. The Fæces which are soft, of a reddish Colour, and a due Consistence, which are not extraordinarily fetid, and which correspond to the Quantity of Aliment taken, are best of all. They ought also to become somewhat thicker when a Crisis draws near. It is also a good Omen, when round long Worms are discharged at the same time. But if the Matter of the Fæces is liquid, it may afford the Patient Relief, provided it is discharg'd without much Noise, and not too frequently in small Quantities, nor in such large Quantities, or so often, as to bring on Faintings. Fæces which are aqueous, white, or of a greenish pale Colour, red, frothy, or glutinous, are bad. That Excrement which is black, that which resembles Fat, that which is livid, or like Verde-grise, are the most fatal, and of the worst Prefage. That which is purely black, or is only a Discharge of the black Bile, is universally a bad Omen; since this Humour, from whatever Quarter it comes, denotes the bad State of the Viscera. Excrements of various Colours denote the Length of the Disease, and shew that it is not altogether free from Danger. *Hippocrates* ranks among the same Class Excrements which are bilious or yellow, or mixed with Blood, those that are green and black, and those which resemble Scrapings of the Bowels.

Bowels. He also esteemed those Stools bad which contained only pure Bile, or Phlegm alone. The Substance discharged by Vomit ought to be mixed with Bile and Phlegm; and that in which one of these is only found is bad. When this Matter is black, livid, green, or of a porraceous Colour, 'tis a fatal Symptom. The Matter which is very fetid is so likewise; but when it is fetid and livid at the same time, Death will soon be the Fate of the Patient. A Vomiting of Blood very often proves mortal.

The various Kinds of Spit, which in Disorders of the Lungs and Pleurifies afford the most Relief, are such as are expectorated most speedily and easily. It is also a good Sign, if they are at first mixed with a great deal of yellow Matter; but if they appear all of the same Colour, or are red, long after the Beginning of the Disorder, or if they are saltish, acrid, or occasion a violent Cough, they are bad. Spits purely yellow are also bad, and such as are white, glutinous, and frothy, afford no Relief. Whiteness of the Spit is also a Mark of Concoction; but it must not be viscid, too thick, or too clear. The same Judgment may be formed of the Excrements of the Nose, with regard to Concoction or Crudities. Black, green, or red Spit, is of bad Presage. In Inflammations of the Lungs, Spit mixed with Bile and Blood is a good Omen, if it appears at the Beginning; but bad, if it only appears about the seventh Day. But in these Disorders, the worst of all Signs is when the Spit is retained, and when the too great Quantity of Matter, which presents itself for Expectoration, produces a Stertor, or Rattling in the Throat and Breast. Spitting of Blood is followed by a Spitting of Pus, then by a Phthisis, and last of all by Death.

Good Sweats are those which happen on a critical Day, which are plentiful, universal, and remove the Fever. Cold Sweats are bad, especially in acute Fevers; for in others they only denote the Length of the Disorder. When a Diaphoresis only appears on the Head and Neck, 'tis a Sign that the Disorder will be long and dangerous. A gentle Sweat or Moisture appearing on any Part, such as the Head or Breast, does not afford Relief, but denotes the Seat of the Distemper, and the Weakness of the Part on which it appears. This sort of Sweat *Hippocrates* calls *Ephidrosis*.

During the Time that Pus is forming in any Part, Pain is felt, and the Fever continues; but, as soon as the Pus is form'd, or prepar'd, the Pain and Fever cease. The Hypochondria and Belly ought always to be soft and equal, both on the Right and Left Side, and every-where else. When these Parts are hard, unequal, hot, elevated, or when the Patient cannot suffer them to be handled, it is a Sign of the bad State and Disposition of the Viscera, except in Cases where there are external Inflammations.

Hippocrates also examin'd the State of the Pulse, or the Beating of the Arteries; and, according to the Observation of *Galen*, he was the first Physician who was known to use *Σφυγμὸς* (the Pulse) in the Sense in which it is commonly taken, that is, a Beating of the Arteries. For we must observe, that the ancient Physicians, and even *Hippocrates* himself, for the most part, meant by this Word the extraordinary Pulsation, or violent Beating, which is felt in any Part that is inflam'd, without applying the Fingers to it. But *Galen*, who gives us this Account of *Hippocrates*, in another Passage informs us, that the Pulse is the only Part of Medicine upon which this ancient Physician has not touch'd. Some Greek Authors, of a later Date than *Galen*, have also made the same Observation. We may, however, collect several Observations, with respect to this Particular, from the Writings of *Hippocrates*: When, for Instance, in the fourth Book of his Epidemics he informs us, that, in very acute Fevers, the Pulse is very frequent, and very great; when, in the same Passage, he makes mention of tremulous and slow Pulses; and when he observes, in speaking of the *Fluor Albus*, that, when the Pulse beats in a gentle and languid Manner, it is a Sign of approaching Death. In like manner he observes, in his *Coacæ Prænotiones*, that lethargic Patients have a slow and languid Pulse. He also informs us, in the second Book of his Epidemics, that, when the cubital Vein (*that is, Artery*) beats, the Patient is in danger of becoming furious, or is a Person naturally prone to Anger. These Quotations shew us, that *Hippocrates* was not entirely ignorant of the Signs drawn from the Pulse; but it must be own'd, his Precepts, with respect to this Particular, are very few, in comparison to what has been deliver'd with so much Exactness, and frequently more than once, concerning all the other Signs. Neither does it appear, that he himself, in Practice, made any Use of the Rules he has laid down with respect to the Pulse; at least, in his Epidemics, which are a sort of Journal of a great Number of Cases he had treated, we find nothing relating to this Subject, except the two Passages already quoted. And it is surprising, that, considering his Exactness in every other respect, and his Care to observe the most minute Circumstances, he should forget to make the least Mention of the State of his Patients Pulses. In all Probability he did not judge whether his Patients were feverish or not, or of the Degrees of their Fever, if they were really so, by the Pulse. Perhaps the different Degrees of Heat and Cold the Patients felt, their greater or less Inquietudes, and particularly their Manner of Respiration, which he generally observ'd with the utmost Care, were by him thought Points of the greatest Importance, and the Marks by which he discover'd whether his Patients labour'd under a Fever or not, and whether that Fever was considerable or not. These Observations of *Hippocrates* relate principally to the Prognostics of Diseases; and if, in this Particular, he was in the right, it was the Effect of his Judgment, his Exactness, and his particular Attention to the Nature of every Disorder that occur'd: this made *Galen* very justly affirm, that *Hippocrates* was the most careful, and the most exact, of all Physicians. Care in observing every thing that happen'd to the Patient, was so material and constituent a Part of his Character, that, notwithstanding his philosophical Turn, he was not by far so much attach'd to reasoning upon the Symptoms of Diseases, as careful in relating them with Candor and Honesty. He was principally taken up in observing the Symptoms of Diseases, in order to distinguish them, and judge of the Events of those which he had actually under his Management, by comparing them with similar Cases he had formerly treated; and he was seldom at any great Pains to assign a Reason, why, when such a Symptom appeared, it was generally follow'd by such another. The Empirics, a Sect of Physicians, who arose after him, for this Reason disputed, with the Dogmatic or Reasoning Sect, the Honour of having this Father of Physicians on their Side; for the former maintained, that the Method of *Hippocrates* was not different from their own, and look'd upon him as an Author of their own Sect. *Galen* had some Reason to blame them in this Particular; for 'tis not to be doubted but *Hippocrates* reason'd, and even sometimes philosophiz'd, in the Course of his Profession. The Empirics, indeed, had been in the right, if they had only asserted, that the Philosophy of *Hippocrates* was none of the best; and said, that they prefer'd the bare Descriptions he had given of Diseases, and their Symptoms, and his Directions and Observations with regard to the Method of treating them, before all his Reasonings on the Causes of these Disorders. 'Tis, however, certain, that *Hippocrates* has recommended his Medicine to Posterity by those very things for which the Empirics admire him; and 'tis by these means he has made himself esteemed even by those who were no Favourers of his Theory. We may add, that the Books of *Hippocrates*, which contain the most Reasoning and Philosophy, are ascribed to other Authors; such as his Book *de Natura Hominis*, that *de Natura Pueri*, that *de Ventis*, the first of those *de Diæta*, and some others. The Author of the Book *de Subfiguratione Empirica*, which is among the Works of

Galen,

Galen, is of the same Opinion, when he says, “ That if *Hippocrates* has in the Eyes of Posterity acquired a Character equal to that of *Æsculapius*; it was because he cured Luxations, Fractures, and Ulcers, which others could not cure ; ” and because he told beforehand what was to happen, and what had happened to Patients without any Information ; and not because he wrote large Volumes, or advanc’d curious and fine-spun Speculations.

Besides, it ought to be observed, that the Skill of *Hippocrates*, and the Physicians who came after him, and imitated him with respect to the Prognostics of Diseases, made the People, who did not know how far their Knowledge extended, look upon them as Persons of a divine Character, and exact things of them which were far beyond their Skill. Some of these Physicians have been very fond of keeping up this Opinion amongst the Vulgar, with a View to the Profit they expected to reap from it ; since, said they, if the People will be deceived, let them be so.

What obliges some Physicians, in our Days, to go upon this dishonest and unworthy Maxim, is their really observing, that the People will be deceived ; and that those Physicians, who, believing themselves capable of satisfying reasonable Patients, scorn to turn Quacks and Mountebanks, have very little Practice, and are abandon’d in favour of a Set of miserable Blunderers, who can neither read, nor write, but who are sought after eagerly, in order, from a Glas of Urine, to give an Account of a Disorder, which, perhaps, they could not discover, tho’ they saw the Patient himself. When we speak of the People, we do not mean the Dregs of Mankind ; for People of this Character are equally spread thro’ all Conditions of Life, and are, generally, the most numerous in every Community. It often happens, I know not for what Reason, that People, otherwise valuable for Penetration and good Sense, are as much misled in this Particular, as the meanest of the Vulgar.

But, to return to *Hippocrates*, ’tis a Circumstance which does not a little contribute to raise his Merit, that, notwithstanding he lived at a Time when Medicine was involved in Superstition, yet he never suffered himself to be drawn away by the prevailing Folly. Neither his Reasonings, his Observations, nor his Remedies, have the least Tincture of this Weakness, which was so general in his Days, and is still so prevalent among some Physicians. The Prognostics also of *Hippocrates* have no other Foundation than purely natural Things. ’Tis true, in his Book *de Insomniis*, he speaks of some Ceremonies or Sacrifices to be performed to certain Divinities, according to the Nature of the Dreams ; but these Fooleries were no more in him than the Duties enjoined by his Religion. His good Sense in other Parts of that Work appears by his accounting for Dreams from what People have done or said ; he also draws Consequences from them with respect to the State of the Body, accordingly as it is loaded with Bile, Phlegm, or Blood. This he infers from the Subjects of different Dreams, and the various Circumstances with which they are accompanied.

Thus we see, that almost whatever we know with respect to the Signs and Symptoms of Diseases, has been learned from *Hippocrates* ; and we are not less obliged to him for several important Maxims relative to the Preservation of Health, and the Cure of Diseases, which the modern Physician must never lose Sight of, if he intends to be successful in his Practice. Thus he informs us, that the Preservation of Health principally depends upon eating without Satiety, and using suitable Exercise ; for, says he, it is impossible for a Person to continue in Health, if he eats, without Labour ; because Eating and Exercise mutually assist each other. Exercise consumes the Superfluities of the Aliment received into the Body ; and Aliment again replenishes the Body, and supplies the Deficiencies of what is worn away and consum’d by Exercise. But he strongly recommends Temperance, or Moderation, with respect to Meat, Drink, Sleep, Exercise, and Venereal Enjoyments.

What the Moderns have said, in a thousand Volumes, may be reduc’d to these short Rules, which are so excellent, that if they were universally put in Practice, however beneficial they would be to Mankind in general, they would ruin the Physicians, by rendering their Art in a great measure useless ; for very few Diseases would occur, except such as are Endemial, Epidemical, or produc’d by Accident ; and even these would generally be so mild, as to admit easily of a Cure.

Hippocrates has, farther, been very express in his Observations concerning Air, Water, particular Situations, and Climates. His indefatigable Industry, also, furnish’d him with a great Number of important Remarks, relative to particular Sorts of Aliments, and Exercises, consider’d both as a Preservative from, and curative of, Diseases ; nor has he omitted taking Notice, that Baths, Clysters, Frictions, and gentle Vomits, may be advantageously employ’d as Aids or Succedanea to Exercise, for the Preservation of Health. On this Occasion I cannot omit remarking, that Dr. *Cheyne* lays great Stress, in many Parts of his Works, upon frequent gentle Vomits, with the same View, in valetudinary Constitutions.

With respect to chronical Distempers, the Method of Cure, practis’d by *Hippocrates*, consisted principally in regulating the Diet, directing proper Exercises, and prescribing Baths, Unctions, Frictions, and a very few Medicines ; and it does not clearly appear, that, at this Day, notwithstanding all our boasted Improvements, we can treat chronic Cases in a manner more rational, or more frequently attended with Success. I know there are other, but perhaps less successful, Methods of treating these Cases, by the frequent Exhibition of Remedies, some of which operate with considerable Violence ; but it has been disputed, perhaps not without Reason, whether these Medicines, by their Operation, tho’ they may remove the present Complaint, may not injure the Constitution so far, as to lay a Foundation for other Diseases, or to shorten Life. This *Quarles* alludes to, when he represents a Physician perpetually snuffing a Candle, insinuating, that it burns the clearer for his Assistance, but wastes, at the same time, the faster. I would not be understood to mean, that such Medicines are never to be used ; for there are *Herculean* Diseases, which require adequate Remedies ; and of this *Hippocrates* was abundantly sensible, and accordingly apply’d them, when more gentle Treatment fail’d of Success.

The extraordinary Sagacity, however, of *Hippocrates*, made him discover, that Exercises of all Sorts were prejudicial in acute Diseases ; accordingly he never directed them in these Cases ; and in the sixth Book of his Epidemics, he shews the Absurdity of *Herodicus* in conducting in a different Manner.

In Diseases of the acute Kind, *Hippocrates* was convinc’d by Experience, that Nature alone bore a great Share, and was very powerful in conducting the Disease through all its Stages, preparing or concocting the morbid Matter for Expulsion, and bringing it to a Crisis. In pursuance of this Opinion, instead of disturbing Nature in her salutary Operations, by administering a Multitude of Remedies, he industriously waited on her, though not as an idle Spectator ; for he endeavour’d to promote the Concoction and Preparation of the Humours, and to moderate the Symptoms, when excessive, by a just Regimen, and a few Remedies ; and when evident Signs of Concoction appear’d, and not before, he assisted Nature, when deficient, in the Expulsion of the morbid Matter, by those Evacuations to which he observ’d a spontaneous Tendency.

The principal Rules by which he regulated his Practice, are the following.

First,

First, that Contraries or Opposites were the Remedies of their Opposites; that is, if we suppose certain things opposite to each other, we must employ them against each other. He explains this Maxim in that Aphorism where he says, that Evacuation cures the Diseases which proceed from Repletion, and Repletion those which proceed from Evacuation. Thus Heat destroys Cold, and Cold Heat.

In the second Place he asserted, that Medicine was no more than an Addition of what was wanting, and a Subtraction or Retrenchment of what was superfluous. This Axiom is explained by what *Hippocrates* says; when he informs us, that there are certain Juices or Humours, which, on certain Occasions, must be evacuated, dislodg'd, or dry'd up; and others which must be recruited, and produc'd afresh in the Body.

As for the Manner of doing this, he cautions us in general, to beware of evacuating, or filling too suddenly; or too plentifully; and informs us, that it is dangerous to become suddenly hot, or suddenly cold; since all Excesses are prejudicial to Nature.

In the fourth Place *Hippocrates* asserted, that it was sometimes necessary to dilate, and sometimes to contract: To dilate and open the Passages by which the Humours are naturally evacuated, when they are either not sufficiently open, or entirely obstructed; and, on the contrary, to brace up the relaxed Passages, when the Juices which pass through them ought either not to be evacuated at all, or are actually discharging in too large a Quantity. He adds, that there are certain Occasions, on which the Physician ought to mitigate; others, on which he ought to indurate; others, on which he ought to soften; sometimes he must attenuate, and sometimes inspissate; sometimes he must rouse, and give a Stimulus; and sometimes stupefy, and render void of Sensation; and all this with regard to the Humours, and the solid Parts of the Body.

In the fifth Place he advises us, to have a particular Regard to the Course of the Humours, and diligently to observe whence they come, and whither they tend; and in Consequence of this he advises, that when they tend where they should not go, we should derive them to some other Part, and alter their Direction, almost in the same manner in which the Water of a Rivulet is turn'd. Or, upon other Occasions, we must endeavour to divert these Humours, deriving those upwards which tend downwards, and those downwards which tend upwards. This is neither more nor less than the modern Doctrines of Derivation and Revulsion.

In the sixth Place he observes; that what must necessarily be discharg'd, ought to be carried off through proper Passages.

Seventhly, When, says he, we do any thing according to Reason, though the Success does not always answer, yet we ought not too easily, or too quickly, to change our Method of acting, so long as our first Reason remains in Force. But, as this Maxim may sometimes prove fallacious, the following may be a kind of Limitation and Correction to it. "We must," says *Hippocrates*, "pay a great Attention to that which affords Relief, and that which does Injury; that which the Patient easily bears, and that which he is not able to support."

His ninth Advice is of the greatest Importance: We must, says he, do nothing rashly. We must sometimes remain at Rest, or without doing any thing. By this means, if we do no Good to the Patient, we at least do him no Harm. To violent Disorders we must, according to *Hippocrates*, apply violent Remedies. What resists the Force of Medicines, the Knife may cure; what the Knife cannot cure, Fire may relieve; but what Fire cannot cure, ought to be look'd upon as incurable. In the last Place *Hippocrates* advises against undertaking desperate Diseases, since their Cure is beyond the Force and Power of Medicine.

These are the most general and important Maxims on which *Hippocrates* founded his Practice; and most of them presuppose that fundamental Principle he lays down at first, which is, that Nature herself cures Diseases.

Under the Article ALCALI I have given so full an Account of the Regimen recommended by *Hippocrates* in acute Distempers, that it would be superfluous to take farther Notice of it in this Place. I shall therefore proceed to the Remedies known and used by *Hippocrates*.

Though the more gentle and lenient Cathartics, with which the *Arabians* and some others have enrich'd Medicine since the Time of *Hippocrates*, could not be known to him, yet he appears to have been abundantly sensible, that keeping the Belly soluble; or purging gently; was of the utmost Importance in the Cure of Diseases. For this Purpose he made use of a Decoction of the Herb Mercury, with an equal Quantity of Ptisan, and a small Portion of Honey, which he directs to be given at Intervals. Sometimes he prescribes Cabbage, or its Juice; and, if this did not answer the Intention, the Leaves of Elder. With a View of procuring Stools, he likewise orders a Decoction of Beet with Honey, and of Cabbage with Salt. But he more frequently recommends Ass's Milk, and that in so large a Quantity sometimes, as sixteen Heminae, which is more than eight Pints; nor does he omit the Milk of Cows, Goats, and Mares. He directs, moreover, the Use of Whey, which he generally orders to be boil'd; and, according to the Interpretation of *Schulzius*, of a Passage in his Treatise *De Internis Affectionibus*, Buttermilk of Mares Milk. *Hippocrates* also used Clysters and Suppositories.

His Methods of provoking a gentle Vomiting were, to fill the Stomach with some of the above-mentioned laxative Vegetables, and to make the Patient drink after it a Decoction of Lentils, with an Addition of Honey and Vinegar; or to exhibit large Quantities of a Decoction of Hyssop, with a little Salt or Vinegar; or of Honey and Water, with a little Vinegar; and if this did not succeed, he gave the Patient, some little time after, a Draught of warm Water.

The Draftic Purges employ'd by *Hippocrates* were Hellebore, both black and white; Peplium, Colocynthis, the Grana Cnidia, Cneorum, Elaterium, Scammony, and Thapsia, which see under their respective Articles.

Hippocrates orders Blood to be taken away on several Occasions, and from several Parts, as the Arms, the Nostrils, the Forehead, the Occiput, the Veins in the Anus, those under the Tongue, and in the Hands; he appears also to have been well acquainted with the Uses of Cupping and Scarification. See PHLEBOTOMIA.

It does not appear, that he made any great Use of Narcotics, or Medicines which induce Sleep; though in some few Passages of his Treatises of the Disorders of Women, he speaks of the Juice of Poppy, as conducive to the Cure of what we now call Hysterics. He likewise takes Notice of Mandrake, but cautions against exhibiting it in Quantities sufficient to cause Madness; and of Henbane.

As to Fomentations, Baths, Inseffions, Suffumigations, and Gargarisms, he seems to have been perfectly well acquainted with their Efficacies, and the proper Seasons and Manners of using them; and he lays a particular Stress upon Ointments. I don't know, that he any-where mentions Plaisters; but instead of these he frequently directs Cataplasms, in Cases where we, perhaps, might find them preferable to Plaisters.

There is something too ridiculous in the Notion entertain'd by some of *Hippocrates* being an Adept in Chymistry, to require a serious Examination.

When Venesection, and the Use of Purgatives, which were the two principal and most general Means used by *Hippocrates* for diminishing the Superfluity of the Blood and Humours, were not sufficient for that Purpose, he

then had recourse to Diuretics. This he seems to insinuate in the following Passage of his Work *De Ratione Viſus in Acutis*. “All Diſeaſes,” ſays he, “terminate, or are cur’d by Evacuations made either by the Mouth, the Belly, the Bladder, or ſome other like Outlet; but Sweat is common to all Diſeaſes, and equally terminates them all.”

The diuretic Medicines, or ſuch as provoke Urine, were differently prepared, according to the Nature of the Caſe, or the Diſpoſition of the Patient. Sometimes the Bath was uſed for this Purpoſe; and, at other times, ſweet Wine was exhibited with the ſame Intention. The Aliments taken alſo contributed to the ſame Purpoſe. Among the Herbs commonly uſed, *Hippocrates*, for this Intention, recommended Garlick, Onions, Leeks, Cucumbers, Melon, Citruls, Cytisus, both Sorts of Apium, Fennel, Maidenhair, and Nightſhade, as well as all acrid Subſtances. In the ſame Claſs he puts Honey mixed with Water and Vinegar, and all ſalted Aliment. But when he intended to answer that Intention with ſomewhat more Briskneſs and Violence, he took four Cantharides, from which he cut the Wings and Feet, and exhibited the Powder in Wine and Honey. He ordered theſe ſeveral Remedies in various chronical Diſorders, after Purgation, when he believed the Blood to be ſtill loaded with that Species of Humour which he call’d *Ichor*, or when there was a Retention of Urine.

In ſome Caſes *Hippocrates* propoſes exciting a Diaphoreſis, as well as provoking Urine; but he does not inform us in what manner it is to be done. In another Paſſage he tells us, that we muſt carefully examine whether Sweating be proper or not; and if it is, when, and in what manner, it ought to be excited: But he does not ſpecify the Means proper for that Purpoſe. There is only one Paſſage where he ſpeaks of provoking Sweat, by pouring warm Water on the Head of the Patient, till his Feet ſweat; that is, till a Sweat breaks out on all the Parts of his Body. After this he orders the Patient to eat a large Quantity of boil’d Meal, to drink ſome pure Wine upon it, to be cloſe cover’d up, and to remain in that State for ſome time. What he adds immediately after, of eating two or three Roots of *Narcifſus* for Supper, does not appear to have any Relation to the Intention of exciting a Diaphoreſis, ſince *Dioſcorides* claſſ’d the *Narcifſus* among Emetics. ’Tis poſſible *Hippocrates* might have given the Patient his Choice, whether he would ſweat or vomit. ’Tis alſo poſſible, that the *Narcifſus* of which *Hippocrates* ſpeaks, was not afterwards known by the ſame Name, which has been the Fate of ſeveral other Simples. In the Works of *Hippocrates* we meet with no other Sudorifics to be taken internally. The Diſeaſe for which he propoſes theſe Medicines is ſuch a Fever, as does not proceed from Bile or Phlegm, but from a Laſſitude, or any other Cauſe. From this Paſſage we may ſee, that *Hippocrates* did not approve of exciting a Diaphoreſis in any Fevers, except that particular Species he mentions; and we ſhall ſee in the Sequel, that the deſtructive Practice of adminiſtring ſtrong Diaphoretics was of much later Date, and founded on a falſe Theory.

In the Days of *Hippocrates* Surgery was ſo connected with Medicine, that the former was ſcarce diſtinguiſhed from the latter by any peculiar and diſcriminating Name. The Book intituled *De Officina Medici* gives ſo full an Account of a ſurgical Apparatus, that it might almoſt be taken for a modern Treatiſe of Surgery. That *Hippocrates* himſelf aſſiſted the Sick by manual Operation, is a Fact which cannot be called in Queſtion. How this Phyſician acquitted himſelf when he had a Wound or Ulcer to cure, we learn from that Book intituled *De Ulceribus*, which, notwithſtanding its Title, treats principally of recent Wounds. But ſince it is univerſally eſteem’d genuine, we ſhall make uſe of it in giving an Account of the Surgery of *Hippocrates*.

This Phyſician, then, forbids a recent Wound in any Part, except in the Joints, to be waſh’d with any thing but Wine. He requires no other Dreſſings beſides a Cataplaſm, which is not to be apply’d immediately to the Wound itſelf, but to the adjacent Parts.

The Food and Drink muſt be exhibited in moderate Quantities; and the harder they are of Diſteſtion, their Quantities muſt be proportionably the leſs. The Patient muſt alſo remain in a State of Reſt and Eaſe. When the Wound is not in the Abdomen, but only in the Extremities, he ſuffers the Blood to diſcharge itſelf plentifully, ſince by that means the Parts become leſs full, and a leſs conſiderable Corruption enſues. Oils, and oleous Subſtances, are by no means proper for recent Wounds. In many Wounds, eſpecially where a Corruption is threatened, Purging is of ſingular Service. If a Wound is not thoroughly cleanſed, it will neither heal ſpontaneously, nor even when its Lips are brought into Contact.

An *eryſipelas* accompanying a Wound renders Purging abſolutely neceſſary. Where there is a Wound with Contuſion, a Suppuration muſt be made before the Cure can be performed. For answering this Intention therefore, Cataplaſms muſt be apply’d to the tumid Part, but not to the Wound itſelf.

Theſe are his general Directions with regard to Wounds, to which he ſubjoins an Account of the Cataplaſms to be uſed; and of ſuch as are proper for cleanſing ſordid Ulcers. He there alſo gives us an Account of a Medicine proper both for recent and inveterate Ulcers; and that Preparation comes pretty near to the Nature of the *Unguentum Aegyptiacum*, at preſent uſed for the ſame Intention.

Towards the End of the Book there are ſome things relating to an Oedema and Varices. He orders oedematous Swellings of the Feet to have a large Number of ſmall deep Wounds made in them; and directs, that a Varix ſhould be prick’d here-and-there, that the Blood may flow in ſmall Quantities from the little Orifices. In another Paſſage he aſſigns a Reaſon for this ſeemingly unaccountable Piece of Practice. “Though,” ſays he, “it is not expedient to allow a full and thorough Effuſion of Blood, yet Neceſſity often calls upon us to take away ſome.”

With regard to Bandages, he gives the following Direction: “We ought, ſays he, to deſpiſe thoſe whimſical and curious Bandages, which pleaſe the Eye of the Spectator, without answering the Intention for which they are apply’d; for they are not only troubleſome and idle, but alſo frequently hurtful and prejudicial; and ’tis obvious, that the Afflicted ſeek rather a Relief from their Pains, than a conceited and ſuperfluous Elegance in their Dreſſings.” What we are to obſerve, with regard to Bandages, he elſewhere accurately lays down, provided the Book *de Officina Medici* claims him as its genuine Author.

His Book *de Fiſtulis* treats almoſt wholly of thoſe of the *anus*. After he has laid down the Cauſes whence they proceed, he informs us how to make a Search, by introducing a Stalk of freſh Garlick. Then he orders a fivefold Thread, or a Hair, to be paſſed thro’ the Orifices of the Fiſtula, and to be gradually drawn cloſer, that its Sinus may be open’d. Then he preſcribes ſeveral Medicines neceſſary for the Cure of this Diſorder, but makes no mention of the Method by cutting.

Hitherto the Surgery of *Hippocrates* appears to be not very bold; but, in his other Chirurgical Pieces, we find him employ’d in cutting and burning. When treating of Wounds of the Head, he directs us when, and how far, the Bone is to be ſcrap’d or perforated. When the Surgeon neglects this, where it ought to have been uſed, a Suppuration happens internally, and the Patient dies convulſed and delirious. “But, ſays he, this Convulſion ſeizes moſt Patients in the oppoſite Side of the Body; for, if any one has an Ulcer on the Left Part of his Head, the Convulſion ſeizes the Right Part of his Body, and *vice verſa*.” That

That *Hippocrates* had several Instruments for Perforation, we learn from many Passages of his Works. Among these there is mention made of a certain serrated and hollow Terebra, design'd for cutting the Bones to the very Membranes, and not unlike to that Instrument which we call the Trapan. In his Book *De internis Affectionibus*, we are inform'd, that this Instrument was us'd in perforating the Ribs, in order to discharge the Water, in a Dropsy of the Breast; tho' others maintain, that this Operation was perform'd by means of a simple Terebra.

As for Fractures, *Hippocrates*, after making a due Extension, replac'd them, apply'd a Bandage suited to the Nature of the Case, laid proper Compresses, slightly cover'd with some Cerate, over the Bandage, and secured the Compresses with Linen Swaths. Then he apply'd Splints, to be secur'd by very loose Ligatures; only for the sake of Ease to the Patient, but not with a View, that the Splints should contribute any thing to the Compression. This Caution he inculcates in the most earnest manner. The Surgeon must also be able to make a judicious Estimate of the Time in which Bones are generally united and consolidated, by the Formation of a Callus. He gives accurate Directions with regard to this Matter; but informs us, that Difference of Ages and Constitutions must produce a Variation with respect to the Time. The Bones of the Cubitus are consolidated in the Space of thirty Days, during the first ten of which the Diet must be spare, and of an attenuating Nature. On the tenth Day we are diligently to inquire, if Circumstances call for it, whether the Reduction has been duly and accurately made. Then the Bandages and Splints are to be again duly apply'd; and, if no Itching is felt, nor an Exulceration suspected, they are to remain in that State till the twentieth Day. The Patient, in the mean time, is gradually to be strengthened by a larger Quantity of more nourishing Food, in proportion as the Cure advances. Two Thirds of the thirty Days being thus expir'd, the Bandages are to be made gradually looser, and fewer, till the Cure is completed.

This is the whole Process, and, as it were, a general Model for reducing and curing broken Bones; for he himself adds, "These Directions are, as it were, a just and stated Law for the Cure of Fractures, instructing us at once how they ought to be treated, and what are the Events of their being skillfully manag'd." Here there is no Mention made of Plaisters, nor do we read of their being apply'd to these Purposes for a considerable Time after the Days of *Hippocrates*; at least we do not find, that *Paulus Aegineta*, who lived many Years after Christ, us'd any Plaisters in the Cure of Fractures.

In his Book *De Articulis*, the Doctrine of Luxations is delivered at great Length: Where, in slight Cases, he advises to make the Reduction with the Hand alone; but, in more terrible Cases, such as a Luxation of the Spine, he makes use of an Instrument, which he calls *Διαναγκασμὸς*, the Structure and Use of which he describes at Length. Thus also, in the Reduction of a luxated Humerus, after enumerating the several Methods generally us'd, he describes a Machine, under the Name of *ΑΜΒΕ*, by which the Humerus is most easily reduc'd, and this very Instrument is still us'd by some modern Surgeons for that very Purpose. *Hippocrates* himself seems to have been the Inventor of this Machine, which, in all succeeding Ages, has bore his venerable Name. He seems also to have been highly diligent in finding out compendious Methods of Cure in Chirurgical Cases. As a Proof of his Industry in this Particular, we need only consider his giving an Account of a fruitless Experiment he himself made, and the Reason he assigns for acquainting the World with his want of Success. "This, says he, I wrote on Purpose; for 'tis instructive to know those things which, upon Trial, were not attended with Success, and the Reasons why."

Hitherto we have had a Specimen of the Surgery of *Hippocrates*, with regard to Wounds, Ulcers, Fractures, and Luxations; in which Cases we often find him not afraid to add one Wound to another, or to make Incisions, for the Relief of the Patient, and the Cure of the Disorder. He also perform'd curious Operations on the Eyes.

In Suppurations of the Kidneys, if a Tumor appears about the Spina, he open'd it, by making a deep Incision, that the Pus might be discharg'd. He order'd the Paracentesis to be perform'd on the Breast, for evacuating the Pus and Water contain'd in its Cavity. He also order'd the same Operation to be perform'd in the Abdomen, for carrying off the Water collect'd in it, in that Species of Dropsy call'd Ascites; tho', for the most part, he said these Operations were follow'd by none of the best Consequences. In these Disorders he sometimes us'd the actual Cautey instead of Incision.

In general it may be said, that *Hippocrates* was not afraid of using the actual Cautey, since 'tis certain, that he lays down plain and accurate Directions for cauterizing the Shoulder, or rather the Parts about the Arm-pit, in Cases where the Humerus frequently slips out. He also order'd raw Flax to be burnt upon the Parts immediately affected with arthritic Pains, which Piece of Practice has been retain'd by his Followers.

He also extract'd the Fœtus, when dead, by the Help of Instruments, as is obvious from his small Book *De Exsectione Fœtus*: But he not only discharg'd his Disciples from cutting for the Stone, but also bound them by a solemn Oath, to leave this Operation to those whose Province it came under. That he did so, is certain, provided that Form of Oath which passes under his Name, was by him really administer'd to his Disciples; but the most Judicious think they have just Reason to doubt of the Truth of this Circumstance. In all Probability, the Operations for the various kinds of Herniæ were not practis'd in his Days, since Herniæ are only once mention'd by him in his Works.

In order to shew the Progress which Physic had made in the Time of *Hippocrates*, Mr. *Le Clerc* very judiciously gives a Catalogue of the Diseases mention'd or describ'd by him, which he distributes into five different Classes: Under the first he comprehends all those Distempers which have retain'd the Names he gave them, and are known, by the Signs and Symptoms, to be the same which he describes.

The second Class contains those Distempers which are known by Names different from those by which *Hippocrates* call'd them, but are distinguished by the Symptoms which he attributes to them.

The third includes such Distempers as *Hippocrates* has call'd by no particular Name, but only describ'd.

Under the fourth are comprehended Distempers, which, tho' nam'd and describ'd, are, however, not known at present.

The fifth contains such Disorders as are call'd by Names which at present we do not understand, and which are not describ'd.

FIRST CLASS.

A

- Ἀγκύλη, Ancylosis.
 Ἀγμοί, } Fractures.
 Κατάγματα, }
 Ὅς τὸ αἰδοῖον ἐπαίρειν ἀδύνατον, Impotence.
 Αἰδοίων σηπεδόνες, Putrefactions of the Pudenda.
 Αἷματος πύσις, Spitting of Blood.
 Αἰμωδία, Stupor of the Teeth.
 Αἰμορραγία, Hæmorrhage.
 Αἰμορροίδες, Hæmorrhoides.
 Ἀκροχόρδονες, Warts.
 Ἀλγήματα, Pains.
 Ἀλυσμός, }
 Βληττισμός, } Anxiety or Restlessness.
 Ριπτασμός, }
 Ἀλύκη, }
 Ἄλφει, White Leprosy.
 Ἀλώπηκες, Alopecia.
 Ἀμβλυαγμός, Dimness of Sight.
 Ἀναδία, Privation of Voice.
 Ἀνθραξ, Carbuncle.
 Ἀπορέξιν, Loss of Appetite.
 Ἀρτιάδες, Tumors of the Tonsils.
 Ἀποπλεξία, } Apoplexy.
 Βλητοί, }
 Ἀπόληψις φλεβῶν. See the Article APOLEPSIS.
 Ἀπόστημα, } Abscess.
 Ἀπίσασις, }
 Ἀποφορὰ, }
 Ἐκτρωσις, } Miscarriage.
 Διαφορὰ, }
 Ἐκβολή, }
 Ἀρθρα τοῦ πλεύμονος σπασμέντα, Spasmodic Contractions of the Lobes of the Lungs.
 Ἀρθρίτις, Gout.
 Ἀρθρίτις μετ' ἐπιπρωμάτων περὶ τοῖσιν ἄρθροισιν, Gout with indurated Matter at the Joints.
 Ἄσαι, Nauseating of Food.
 Ἀσθμα, Asthma.
 Ἀσκαρίδες, Worms call'd Ascarides.
 Ἀτοκοί, καὶ ἄφροι γυναῖκες, Sterility in Women.
 Ἀφθαί, Aphthæ.
 Ἀφωνία, Dumbness.
 Ἀψυχία, } Fainting.
 Λειποθυμία, }

B

- Βαρηκοία, Dulness of Hearing.
 Βήξ, Cough.
 Βλεφάρων ἐπιφύσεις ἢ σῦκα, Excrescences on the Eyelids.
 Βλεφάρων ἐκτροπή, A Turning of the Eye-lid outwards. See ECTROPE.
 Βλεφάρων ξύμφυσις, Coalescence of the Eye-lids.
 Βλεφάρων ψώρα, Scabby Eye-lids.
 Βλητοί. Those were thus call'd who were either apoplectic, or dy'd of a Pleurisy, and had a Lividness on their Sides after Death.
 Βόμβοι ἐν ὠσίν, or ἤχοι, Ringing in the Ears.
 Βουβῶνες, Buboes.
 Βράγχος, Hoarseness.

Γ

- Γαγγραινώδες, }
 Σηπεδόνες μέλαιναί καὶ ξηραί, } Gangrene and Spha-
 Σφακελός, } celus.
 Σφακελισμός, }

- Γαλιάγκωνες, Shortness of the Arms.
 Γαργαρέων ἀνεσπασμένον, Retraction of the Uvula.
 Γλαύκωμα, } Glaucoma.
 Γλαύκωσις, }
 Τῆς Γνάθος σφακελισμός, Sphacelation of the Cheek.
 Γογγῶναι, Hard round Tumors in the Neck.
 Τὸ Γονοεῖδες διελθόν, Involuntary Discharge of the Semen, simple Gonorrhea.

Δ

- Διαρροία, Diarrhea.
 Διατρίμματα, }
 Ἐκπτώσεις, } Luxations and Sprains.
 Ἐξαρθρήματα, }
 Ἐξαρθρώματα, }
 Δοθίην, A Bile.
 Δυσεντερία, Dysentery.
 Δυσουρία, Dysury.
 Δυσπνοία, Dyspnœa.
 Δυστοκία, Difficult Labour.

Ε

- Ἐγκεφάλου σεισμός, Concussion of the Brain.
 Ἐδρη ἐπιφλεγμαινέση, Inflammation of the Anus.
 Παρὰ τὴν Ἐδρην φῦμα σκληρόν, A hard Tubercle near the Anus.
 Ἐιλεός, } The Iliac Passion.
 Χορδαψός, }
 Ἐιλεός ἰκτερώδης, Iliac Passion, attended with a Jaundice.
 Ἐκπληξίς, A sudden Privation of Sensation.
 Ἐκπτώσις τῆς ὑτέρας, Falling down of the Uterus.
 Ἐκπύσις, } Empyema.
 Ἐμπύημα, }
 Ἐκτασις, Alienation of Mind.
 Ἐκτασις μελαγχολική, Alienation of Mind, caus'd by Melancholy.
 Ἐκχύμα, } Ecchymosis from Contusions.
 Ἐκχύμωσις, }
 Ἐλκεα, Ulcers.
 Ἐλκεα κακοήθεια, Malignant Ulcers.
 Ἐλκεα συριγγώδεια, Fistulous Ulcers.
 Ἐλκεα χοιρώδεια, Scrophulous Ulcers.
 Ἐλλωσις, } Distortion of the Eyes.
 Ὀμμάτων διαστροφή, }
 Ἐλμινθοί, }
 Ἐυλαί, } Worms.
 Θηρία, }
 Ἐλμινδοί πλατεῖαι, Flat Worms.
 Ἐλμινδοί τρογγύλαι, Round Worms.
 Ἐμετὸ αἱμάτηρ, Vomiting of Blood.
 Ἐμπροσθότονον, Emprosthotonos, a Sort of Convulsion.
 Ἐξανθίσματα, Cutaneous Eruptions.
 Ἐπικύημα, Superfetation.
 Ἐπιλεψία, Epilepsy.
 Ἐπιμήνια διάπυα, Purulent Catamenia.
 Ὑμειώδεια, &c. Unnatural Catamenia of all Sorts.
 Ἐπινυκτίδες, Epinyctides.
 Ἐρπητις, Herpes.
 Ἐρυσίπελας, Erysipelas.
 Ἐφηλίδες, Freckles.

Η

- Ἡπατίτις, } Inflammation of the Liver.
 Ἡπαρ φλεγμαίνων, }

Ἰδρῶα, Pustules proceeding from an acrimonious Sweat.

Ἰκτερός, Jaundice.

Ἰλιγγοί, Vertigos.

Ἰονδοί, Hard Tubercles on the Face.

Ἰσχίαι, Sciatica.

Ἰσχυοφωνία, } Hesitation.
Ψελλισμός, }

K

Κάτοχος, } Catoche.
Κατοχή, }

Καρδιαλγία, } Heart-burn.
Καρδιωγμός, }

Καρηβαρία, Heaviness of the Head.

Καρκίνος, } Cancer.
Καρκίνωμα, }

Καρκίνος ἀκρότατος, External Cancer.

Καρκίνος κρυπτός, Latent or internal Cancer.

Καρκίνος σύμφυτος, Hereditary Cancer.

Κάρος, Carus.

Καταμήνια, ἢ τὰ γυναικεῖα πλείονα, Redundancy of the Catamenia.

Καταμήνια ἀκρήτως γινόμενα, Natural Catamenia.

Καταμήνια ἀχρῶα, Colourless Catamenia.

Καταμήνια ἐκλείποντα, Retention of the Catamenia.

Καταμήνια ὀλίγα, Deficient Catamenia.

Κατάρροι συντόμως ἀπόλλυντες, Suffocating Catarrhs.

Κατάρροσ, A Defluxion or Rheum.

Καταφορὰ, Cataphora.

Καῦσος, Causus, or burning Fever.

Καχεξία, Cachexy.

Κεφαλαλγία, Head-ach.

Κήλαι, Ruptures.

Κηριαί, } Favi and Achores.
Ἀχῶρ, }

Κίονες τηκόμενοι, Putrefactions of the Uvula.

Κίρσοι, } Varices.
Ἰξίαι, }

Κίρσος ἐν πλεύμονι, Varix of the Lungs.

Κίων ἐν αἰδοίοις, Excrescence in the Pudenda.

Κνησμός, } Itching.
Κνιπότης, }

Κνιδώσις διὰ τὸ σῶμα, A pungent Itching in the Mouth.

Κύνδυλοι ἀνωθεν τῶν ἑλῶν, Tubercles of the Gums.

Κόραι αἱ σμικρότεραι φαίνοντες, ἢ γωνίας ἔχουσαι, The Pupil of the Eye too small, or angular.

Κόρης ἑλκωσις, Exulceration of the Pupil.

Κορύζα, Coryza.

Κριτὴ ἐν βλεφάρῳ, Hordeolum on the Eyelids.

Κυνάγχη, Quinsy.

Κυνάγχη ἐς τὴν πλέυμονα, A Quinsy affecting the Lungs.

Κύρτωσις, } Crookedness.
Κύφωσις, }

Κύψις ἀποληφθεῖσα, Retention of Urine.

Κῶμα, Coma.

Κῶμα ἐχ' ὑπινῶδες, Coma Vigil.

Κωφωσις, Deafness.

Λ

Λειεντερία, Lientery.

Λειχήνες, Tetters.

Λέπρη, Leprosy.

Λεύκη, The white Leprosy.

Λήθαργος, Lethargy.

Λημαί, Blear Eyes.

Λημαί ξηραί, Dry blear Eyes.

Λίθος, } Stone.
Λιθίασις, }

Λιμός, Canine Appetite.

Λοίμος, The Plague.

Λοποί, Desquamations of the Skin.

Λόρδωσις, Distortion of the Spine forwards.

Λοχίη κατὰρσις κατεχόμενη, Retention of the Lochia.

Λύγμος, Hiccough.

Μ

Μάδισις, Baldness.

Μανία, Madness.

Μελαγχολία, }

Τὰ Μελαγχολικά, } Melancholy.

Μύλη, A Mole.

Μώρωσις, Stupidity.

Ν

Νάρκωσις, Torpor, or Loss of Sensation.

Νεφέλαι, } Clouds,
Ἀχλὺς, } Cicatrices
Αἰγίδες, } Pearls
Ἀργέμων, } Albugo

in the Eyes.

Νεφρίτις, Any Affection of the Kidneys.

Νηπίων ἐκλάμψεις, Epileptic Fits in Children.

Νυκτάλωπες. See the Article NYCTALOPS.

Ο

Ὁδαξισμός, Pains of the Gums in Children from their breeding Teeth.

Πρὸς τοὺς ὀδόντας ἀλγήματα, Tooth-ach.

Πρίσις τῶν ὀδόντων, Gnashing or Grinding of the Teeth.

Συνερισμός ὀδόντων, Fixing of the Teeth, of the upper and lower Jaws, together.

Ὁδύναι, Pains.

Ὁιδημα, Tumor.

Ὁμφαλος φλεγμαίνων, Inflammation of the Navel.

Ὁνειρώγμοι, Nocturnal Pollutions.

Ὁπισθότονος, A Specimen of Convulsion call'd *Opiſthotonos*.

Ὁρθοπνοία, Streightness of Breathing.

Ὁρχις μέγας, Tumefy'd Testicles.

Ὁσφύος πόνοι, Pains of the Loins.

Ὁυλαι μάλαιναι, Blackness of the Gums.

Ὁυλή ἐν κόρῃ, a Cicatrix in the Pupil of the Eye.

Ὁυρον κατεχόμενον, Retention of Urine.

Ὁφθαλμὸς ἐρρωγὼς, Rupture of the Eye.

Ὁφθαλμὸς ἑλκωσις, Exulceration of the Eye.

Ὁφθαλμὸς ὑγρὸς, Moist Ophthalmy.

Ξηρὸς, Dry Ophthalmy.

Ὁφθαλμὸς διεφθαρμένος, Pupil of the Eye spoil'd.

Τῆς ὀφθαλμοῦ μετακίνησις, The Pupil remov'd from its natural Situation.

Ὁφθαλμὸς διὰ τῆς ῥώγμης ὑπερέχουσα, Prominence of the Pupil, occasion'd by a Rupture of the Eye.

Π

Παλμός, Palpitation.

- Παραφρεσίη, }
 Παράρρη, } Delirium.
 Παρακοπή, }
 Παράκοποις, }
 Παραλήρη, }
 Παρακυνάγχη, a Species of Quinsy.
 Παράνοια, Madness, Loss of the Senses.
 Παράστρεμμα ἐν προσώπῳ, Distortion of the Mouth.
 Παριδμία, Disorders of the Tonsils.
 Παρονυχία, Whitlow.
 Περιπνευμονία, Peripneumony.
 Περιέρρη, Great Discharges of the morbid Humours.
 Πιτυρίασις, a scurfy Head.
 Πιέσται τῶν ὀστέων, Hysterical Symptoms.
 Πλευρὸν ἔμπτῳ, Suppuration of the Lungs.
 Πλευρίτις, Pleurisy.
 Πλευρίτις ξηρὴ, Dry Pleurisy.
 Πλευρίτις υγρὴ, Moist Pleurisy.
 Πιξ υστερικὴ, Hysterical Suffocations.
 Πόδαγρα, } Gout in the Feet.
 Πόδαγμα, }
 Πολύπους, Polypus in the Nose.
 Πτερύγιον, the Unguis, a Disorder of the Eyes.
 Πτυαλισμός, Spontaneous Salivation.
 Πύον διὰ τῶν, A Discharge of Pus by the Nostrils.
 Πύρ, A burning Fever.
 Πύρ ἄγριον, A sort of inflammatory Tetters, perhaps the Shingles.
 Πυρετός, Fever.
 Πυρετός ἀκατάστατος, An irregular Fever, fixed to no certain Period.
 Πυρετός ἀκρητιχολός, A pure bilious Fever.
 Πυρετός ἀλμυρώδης, A salt Fever.
 Πυρετός ἀμφημέριος, A quotidian Fever.
 Πυρετός ἡμέριος, A Fever, whose Paroxysms seize the Patient in the Day-time.
 Πυρετός ἀσώδης, A Fever attended with Anxiety.
 Πυρετός ἀτακτός, An irregular Fever.
 Πυρετός ἀχλωδός, A Fever attended with Dimness of Sight.
 Πυρετός βληχρὸς, A slight Fever.
 Πυρετός γλισχρός, See the Article GLISCHROS.
 Πυρετός δακρῶδης, ἢ πρὸς τῇ χειρὶ, A Fever which is pungent, or one which is mild to the Touch.
 Πυρετός διαλείπων, An intermittent Fever.
 Πυρετός ἐξέρυθρος, A Fever attended with great Redness.
 Πυρετός ἐξωχρός, A Fever attended with great Paleness.
 Πυρετός ἐκασταφιδαν, An increasing Fever.
 Πυρετός ἐπιαλός, A Fever attended with Shivering.
 Πυρετός ἐπιήκειος, A Fever of a mild Kind.
 Πυρετός ἡμιτρίταιος, A Hemitriticus.
 Πυρετός ἰδαν δανός, A terrible Fever.
 Πυρετός ἰλιγρώδης, A Fever attended with a Vertigo.
 Πυρετός κακοῖδης, A malignant Fever.
 Πυρετός κοπῶδης, A Fever attended with Lassitude.
 Τα λειπυρικά, Fevers wherein the external Parts are cold, whilst the internal are extremely hot.
 Πυρετός λυγρώδης, A Fever attended with Hiccoughs.
 Πυρετός μακρός, A long Fever.
 Πυρετός μαλθακός, A soft Fever.
 Πυρετός νοτιώδης, A moist Fever.
 Πυρετός νυκτέριος, A nocturnal Fever.
 Πυρετός ξηρός, A dry Fever.
 Πυρετός ἐννεχρὸς, A continual Fever.
 Πυρετός ὀξύς, An acute Fever.
 Πυρετός πελιδός, A livid Fever.
 Πυρετός πεμπλαῖος, A Fever returning every fifth Day.
 Πυρετός πεμφιδώδης, A flatulent Fever.
 Πυρετός περικαῖος, a burning Fever.
 Πυρετός περιψυχθεῖς, A cold Fever.
 Πυρετός πλανήτης, An Erratic Fever.
 Πυρετός τεταρταῖος, A Quartan.
 Πυρετός τριταῖος, A Tertian.
 Πυρετός τριταιοφύης, A Fever resembling a Tertian.
 Πυρετός φονώδης, a destructive Fever.
 Πυρετός χειμεριώδης, A Winter Fever.
 Πυρετός χλιαρὸς, A moderately hot Fever.
 Πῶροι, }
 Ἐπιπώματα, } Chalk-stones in the
 Συσρέμματα, } Joints.
 Λιθία περὶ τοῖσιν ἄρθροις, }
 Ράχιος διαστρεφής, Distortion of the Spine.
 Ρέγχος, } A Stertor.
 Κέρχχος, }
 Ρεῦμα, A Catarrh.
 Ρεῦμα ἀλμυρὸν, } A salt
 — νιτρώδης, } nitrous
 — δριμύ, } sharp
 — θερμόν, } hot } Catarrh.
 Ρήγματα, Ruptures of any Vessels, or of an Abscess; or Fissures of the Lips, or Tongue.
 Ρίγος, Excessive Shivering.
 Ρόος ἐρυθρός, } Ruber.
 Ρόος λευκός, } Fluor } Albus.
 Ρόος πυρρός, } Ruffus.
 Ρὸς γυναικείος, } Muliebris.
 Σκληρόματα, Indurated Tumors.
 Σκοτοδίνη, } Vertigo attended with Dimness
 Τα σκοτώδεα, } of Sight.
 Σπασμάτα, Contractions of the Fibres.
 Σπασμοί, Convulsions.
 Σπλὴν ἐπηρμένος, } Tumor of the Spleen.
 Σπλὴν μέγας, }
 Σπληνίτις, Inflammations of the Spleen.
 Σταφύλη, Relaxation of the Uvula.
 Στηθος ἢ μετὰ φρενον ραγίη, Fracture of the Breast, or Back-bones.
 Στόμα ἀνεσπασμένον, Distortion of the Mouth.
 Στόμα δυσώδες, Fetid Breath.
 Στραγγυρία, Strangury.
 Στρεβλοί, Wry Neck.
 Στρώφοι καὶ ἀνείλησις, Gripping of the Intestines.
 Σύριγγες, Fistulas.
 Σῶμα νωθρῶδες, Torpidness of the Body.
 Ταχυγλωσσότεροι, Too great Volubility of Speech.
 Τενεσμός, Tenesmus.
 Τερηδών, Caries.
 Τερμινθοί, Terminthi.
 Τετανός, Tetanus.
 Τραυλισμός, Stammering.
 Τριχῶσις, Trichosis.
 Τρέμος, Tremor.

P

Σ

T

Τρέμος,

Τρόμος, Tremor.
 Τρώματα, Wounds.
 Τυφλωσις, } Privation of Sight.
 Ὀφθαλμῶν ἐξήσεις,

Υ

Ὑδρωψ, } Dropsy.
 Ὑδωρ, }
 Ὑδρωψ λευκὸν φλέγμα, } Leucophlegmatia:
 Ὑδρωψ λευκοφλεγμαλίη, }
 Ὑδρωψ ξηρὸς, A dry Dropsy.
 Ὑδρωψ πλεῦμονος, A Dropsy of the Lungs.
 Ὑδρωψ ὑποσαρκίδιος, Anasarca.
 Ὑδρωψ μετ' ἐμφυσημάτων, A flatulent Dropsy.
 Ὑπερέμετος τῶν φλεβίων περὶ τὴν ἐγκέφαλον, Rup-
 tures of the Vessels in the Brain.
 Ὑπερσάρκωσις, Hyperfarcosis.
 Ὑπόγλωσσις, Tumor under the Tongue.
 Τὰ Ὑτέρα κατεχόμενα, Retention of the Secun-
 dines.
 Ὑστερικά, Various Disorders of the Uterus.

Φ

Φαλακρώτης, Baldness.
 Φθίσις, }
 Φθι, } Consumption:
 Φθινώδεια νοσήματα, }
 Τήξις, }
 Φθίσις ἑξίως, Consumption of the whole Habit.
 Φθίσις ισχιαδική, Ischiadic Consumption.
 Φθίσις νεφριτική, Nephritic Consumption.
 Φθίσις νωτίας, Tabes Dorsalis.
 Φλεγμονή, Inflammation.
 Φλυκταῖναι, Phlyctenæ.

Φόβοι ἐν ὕπνοις, Frightful Dreams.
 Φρένιτις, Phrenitis.
 Φρίκη, Horror, Shivering.
 Φύματα, }
 Κόνδυλοι, } Various sorts of Tubercles:
 Συστρέμμαλα, }
 Φύματα περὶ τὴν κύστιν, Tubercles in the Bladder.
 Φύματα ἐν τῇ ὑρήθρῃ, Tubercles, or Caruncles, in
 the Urethra.
 Φύματα χοιρώδεια, Scrophulous Tubercles.
 Τα παρ' ἐς φύματα, } Tubercles about the Ears.
 Φήρεα, }
 Φωίδες, Red Blotches on the Legs, caused by sit-
 ting too near the Fire.

Χ

Χάσμη ξυνεχής, Perpetual Gaping.
 Χίμετλα, Chilblains.
 Χοιράδες, King's-evil.
 Χολέρα, Cholera Morbus.
 Χολέρα ξηρή, } dry } Cholera Morbus.
 Χολέρα ὑγρή, } moist }
 Χρῶμα πονηρὸν, Bad Colour.
 ——— χλωρὸν, Green-sickness.
 Χῶλωσις, Limping.

Ψ

Ψώρα, The Itch.

Ω

Ὁμὸν φῦμα ἐν πλεῦμονι, Crude Tubercles in the
 Lungs.
 Ὁτων πόνοι, Pains of the Ears.
 Ὁτων ὑγρότητες, Redundant Moisture of the Ears.

In the second Class are contained only two Diseases, which are,

Ἀναντή. See the Article ΑΥΑΝΤΕ.

Φροντίς νῆσος χαλεπή. See the Article ΠΗΡΟΝΤΙΣ.

The third comprehends three Diseases, one of which is described in the Treatise *de Aere, Locis, Aquis*, which I have inserted under the Article Αἶθρ. This Distemper is peculiar to the *Scythians*.

Another is thus described.

“ Those whose Spleens are tumefied, are affected with putrid Gums, and have a fetid Breath: But if a
 “ Largeness of the Spleen be neither attended with Hæmorrhages, nor a fetid Breath, the Patient is afflicted
 “ with malignant Ulcers, and black Cicatrices in the Legs. If there be a manifest Abscess in the Face, a
 “ grave or deep Tone of the Voice, or a Pain of the Teeth, we may expect an Hæmorrhage from the Nose.
 “ They who have the Parts under the Eyes very much elevated, will be found to have large Spleens; and if
 “ their Feet also swell, will appear as if they were hydropic; but the Belly and Loins are also to be observ'd.”

The Symptoms here enumerated leave no Room to doubt of the Author's meaning that Distemper which we call the Scurvy.

The third Distemper is described in the third Book of the Epidemics, Section the third.

Before the Beginning of the Spring, the Season being cold, Erysipelases were very frequent, some owing to a manifest Cause, others not; they were however, of a malignant Kind; and very mortal. Many laboured under Disorders of the Fauces, and had their Voice affected; burning Fevers, also Phrensies, Aphthæ in the Mouth, Tubercles (ρύματα) in the Pudenda, Ophthalmies, and Carbuncles, Loosenesses, Aversion to Food, attended in some with a Thirst, in others not, were very frequent. The Urine was turbid, much in Quantity, and of an ill Quality; the Patients for the most part laboured under a Coma, succeeded by want of Sleep. Oftentimes the Disease had no Crisis at all, (for *αἰμασία*, I read *ἀκυσία* with *Foesius*) and sometimes one that was imperfect; Dropsies also and Consumptions were frequent.

In many Persons an Erysipelas, taking its Rise from very small and inconsiderable Pustules, (γαιμαλίαι) dispersed itself all over the Body; but if the Patient were about sixty Years of Age, and in the least negligent, it principally affected the Head. Many, even while under Cure, were seized with violent Inflammations, and the Erysipelas increased, and quickly spread itself every-where. In most who were thus affected, the Pustules (ιτοσαοίαι) came to a Suppuration, attended by an extraordinary Putrefaction and Separation of the Flesh, Nerves, and Bones; for the Collection of Humours was not like good Pus, but a Confluence of corrupt and putrid Matter of many and various Kinds. Those who happened to be thus affected about the Head, suffered the Loss of the Hair from their Head and Beard, with the Denudation and Luxation of the Bones, and a great Defluxion of Humours, with or without a Fever. These Symptoms, however, were more terrible than dangerous; for most of those in whom the Matter ripened, and came to a Suppuration, recovered; but those who, after the Removal of the Inflammation and Erysipelas, remained free from an Abscess, died in great Numbers. And thus it happened, whatever Part of the Body the Disease infected; sometimes the Aim from the Hu-
 merus

merus to the Cubit, or the Part below it, had the Bone laid bare, some had their Sides affected, others their Fore-part, or Back-part. Sometimes the Thigh, or the Leg, or the whole Foot, were deprived of Flesh; but the most dismal Case of all was, when the Distemper seized upon the Pubes and Pudenda.

This Description, I should think, agrees pretty well, with a malignant Species of the Small-pox; but I am sensible, that many are of a different Opinion. As I have given the Passage, others may judge for themselves.

The fourth Class includes only two Distempers.

Τύφος. See the Article TYPHUS.

Παχὺ νόσημα. See the Article PACHYS.

In the fifth Class Mr. *Le Clerc* reckons the following Distempers.

Ἀρεμία, Anemia.

Ταγγαί. See the Article TANGÆ.

Ἰππύρεα. See the Article HIPPOURIS.

Τυφομανία. See the Article TYPHOMANIA.

Νόσος φθινική. See the Article PHTHINICE.

The above-quoted Author mentions *φίσις* in this Class; but improperly, since it is known to import Tubercles under the Ears.

The Medicines taken Notice of by *Hippocrates* are principally the following. But it must be remarked, that as the *Greek* Language in general underwent Variations, so the Names of Plants were frequently changed; and hence arises an Impossibility of being certain, that this Catalogue is entirely just.

<p>A.</p> <p>Abrotanum. Absinthium. Acacia. Acetum. Adiantum. Ærugo Æris. Æs. Æris Flos. Æris Limatura. Æris Squama. Æs Ustum. Agnus Castus. Alica. Allium. Althæa. Alumen. Alumen Ægyptium. Alumen Scissile. Alumen Ustum. Ammoniacum. Anomum. Amygdalæ. Anagallis. Anagyris. Anchusa. Anemone. Anethum. Anisum. Anseris Axungia. Anseris Medulla. Anseris Stercus. Anthemis. Aparine. Aqua marina. Argentum. Argenti Flos. Aristolochia. Aromatica varia. Artemisia. Atriplex. Asinus. Asini Stercus. Aspalathum. Asparagus. Asphodelus. Avena. Auripigmentum. Axungia.</p>		<p>Bitumen. Blitum. Bombylium. <i>A Sort of Bee.</i> Brassica. Bryonia. Bulbus albus. Bulbus inter segetes nascens. Buprestis Animal. Buprestis Herba. Butyrum.</p>	<p>Cratæogonon. Crinanthemum. Crithmum. Crocus. Cucumis. Cucumis sylvestris. Cucurbita. Cuminum. Cuminum Æthiopicum. Cupressus. Cyclamen. Cydonia. Cyperus. Cytisus.</p>	
		<p>C.</p> <p>Cachrys. Calamintha. Calamus Aromaticus. Calx viva. Canis. Cantharides. Capparis. Capra. Capræ Lac. Capræ Axungia. Capræ Stercus. Capræ Sudor. Carabe. Cardamomum. Caseus. Castoreum. Cedria. Cedrus. Centaureum. Cepa. Cera. Cera alba. Cervus. Cervi Cornu. Cervi Medulla. Chalcitis. Chamæleon. Charien. Chondrus. Chrysitis. Chrysocolia. Cicer. Cicuta. Cinnamomum. Cneorum. Cnestrum. Cnicus. Cnidia Grana. Colocynthis. Conyza. Coriandrum. Cornu Bovinum Cornu Caprinum Cornu Cervinum</p>	<p>D.</p> <p>Daphnoides. Daucus. Dictamnus. Dictamnus Creticus. Dracontium. Dracunculus.</p> <p>E.</p> <p>Ebenus. Echinus. Echinus marinus. Elaterium. Epipetron. Ericé. Eruca. Ervilia. Ervum. Erysimum. Euanthemum.</p> <p>F.</p> <p>Faba. Farinæ variæ. Ferula. Ficus sativæ Ficus sylvestris Fœniculum. Fœnugræcum. Fraxinus. Fuligo. Fungus.</p> <p>G.</p> <p>Galbanum. Galla. Glans Ægyptia. Glastum. Glycyrrhiza.</p>	<p>H.</p> <p>Hedera. Helleborus albus. Helleborus niger. Hippomarathrum.</p>
<p>B.</p> <p>Baccharis. Beta. Bilis Bovina. Bilis Porcina. Bilis Scorpii marini.</p>		<p>rasum & ustum.</p>		

Hippomarathrum.
Hippophae.
Holoconitis.
Hordeum.
Hordeum Achilleum. See **ACHILLEIS**.
Horminum.
Hyoscyamus.
Hypocistis.
Hyssopus.
Hyssopus Ciliciæ.

I.

Ilex.
Iris.
Isatis.
Juncus Odoratus.
Juniperus.

L.

Lac Asininum.
Lac Caninum.
Lac Equinum.
Lac Ovinum.
Lac Vaccinum.
Lactuca.
Lagopyrus.
Lapis Cyaneus.
Lapis Magnus.
Laserpitium.
Laurus.
Lens.
Lentiscus.
Leporini pill.
Lepus.
Linum.
Lotus.
Lupinus.

M.

Magnes.
Malicorium.
Malva.
Malum Punicum.
Malus.
Mandragora.
Meconitis.
Meconium Catharticum.
Meconium Infantum.
Meconium Somniferum.
Mel.
Mel Cedrinum.
Melanthium.
Melilotus.
Melissæ duæ Species.
Mentha.
Mercurialis.
Miliun.
Minium.
Misy.
Modus Radix.
Molybdæna.
Morus.
Mulus.
Muli Stercus.
Musculus.
Myrrha.
—— Stacte.
Myrica.
Myrtidanum.
Myrtus.

N.

Narcissus.
Nardus.
Nasturtium.
Nifus.
Nitrum.
Nitrum rubrum.
Nux.
Nux Thasia.

O.
Ocimum.
Oenanthe.
Oesypus.
Oleæ Folia.
Oleæ Fructus.
Oleæ Galla.
Oleæ Lignum.
Oleæ Nucleus.
Oleæ Oleum.
Oleum.
Omphacium.
Origanum.
Orobis.
Ova.
Oxyacantha.

P.

Pæonia.
Panax.
Papaver.
Parthenium.
Pastinaca.
Pentaphyllum.
Peplium.
Peplus.
Pepo.
Persea.
Petroselinum.
Petroselinum crispatum.
Peucedanum.
Phaseolus.
Philistium.
Pinei Nuclei.
Pinus.
Piper.
Pisum.
Polium.
Polygonum.
Populus.
Porrum.
Portulaca.
Præssum.
Pseudodictamnus.
Pulegium.
Pyra.

Q.

Quercus.

R.

Radix alba.
Rana.
Ranunculus.
Rapa.
Raphanus.
Resina Lentiscina.
Resina Terebinthinæ.
Rhamnus.
Rhus.
Ricinus.
Rosa.
Rosmarinus.
Rubia.
Rubus.
Ruta.

S.

Sagapenum.
Sal.
Sal Thebanum.
Salix.
Salvia.
Sambucus.
Sandaracha.
Satureia.
Scammonium.
Scarabæus.
Scilla.

Scolopendrium.
Secundinæ humanæ.
Seleri.
Sepia.
Sepiæ Os.
Sepiæ Ova.
Serpens.
Serum Lactis.
Sesamoides.
Sesamum.
Seseli.
Sinapi.
Sisymbrium.
Solanum.
Sorbus.
Spodium.
Stœbe.
Staphysagria.
Struthium.
Stoibe.
Stybe.
Stybos.
Styrax.
Succinum.
Sulphur.

T.

Tæda.
Tauri Bilis.
Tauri Hepar.
Tauri Urina.
Telephium.
Terebinthina.
Terra Ægyptia.
Terra Alba.
Terra Samia.
Testudo.
Thapsia.
Thlaspi.
Thus.
Thuris Manna.
Thymbra.
Thymus.
Tithymalus.
Torpedo Piscis.
Tragus Herba.
Tribulus.
Trigonum.
Trifolium.

V.

Verbascum.
Verbena.
Vermes.
Vina varia.
Vini Fœces.
Vini Fœces calcinatæ.
Viola alba.
Viola nigra.
Vitis.
Vitis Capreoli.
Vitis Pampinus.
Vitis Sarmenta.
Vituli marini Pulmones.
Vitulus marinus.
Umbilicus Veneris.
Urina.
Urtica.
Uvæ Passiæ.
Uvarum post pressionem magna.
Vulpes.
Vulpinum Stercus.

X.

Xanthium.

Z.

Zea.

I shall add to my Accounts of *Hippocrates*, and his Medicine, the Character a celebrated Modern gives him, who was a most excellent Judge of his Merits; and for the sake of Truth I must confess, that many Censures, which, by the way, he passes on Medicinal Writers, are too applicable to the Medicinal Dictionary, whatever Pains I may have taken to avoid deserving such Reproaches.

'Tis universally allow'd, that the Duty of a Physician consists in preserving the Health of Mankind, and removing those Diseases which interfere therewith. The happy Man who is capable of rendering this important Service to those who demand his Assistance, may justly claim the Seat of Honour among the Sons of *Apollo*; and is a genuine Glory and Ornament to his Profession.

But whatever the unthinking Vulgar may imagine, yet the sagacious and discerning Few are well apprised, that such a Degree of Knowledge is not easily acquir'd; and that the Road to a competent Skill, much more to Perfection, in the *Healing Art*, is on all Hands obstructed, and beset with almost insurmountable Difficulties. For the Nature of Health, and of Diseases, lies, in a great measure, in Obscurity; their respective Causes cannot be fully and adequately discover'd; and though they could, yet still the Virtues of Remedies are not sufficiently known. All these extensive Branches of Knowledge must, however, be examin'd with Accuracy, by one and the same Man, before he can lay a just Claim to the Character of a perfect Physician.

Though it has always been disputed whether the Healing Art has receiv'd the most considerable Advances from the Lessons taught by Experience, or from the Deductions of Reasoning and Argumentation, yet luckily there have never been wanting some Men of a superior Genius, who have laudably endeavour'd to shew their mutual Subsistence to each other, and prove that the former is defective without the latter, which, in its Turn, is equally imperfect without the former. For before Medicine assumed the Form of an Art, and began to be regularly cultivated as a Science, the Sick, prompted by the Agonies of their respective Disorders, had recourse to unknown Remedies, in order to remove Distempers, the Symptoms of which they had learned from their own woful Experience. When by Chance, or a Concurrence of favourable Circumstances, any of these Medicines prov'd salutary, an Observation of the Effects produc'd by them laid the first Foundation for the Art of Physic, which has since prov'd so valuable a Blessing to the World. Afterwards exposing the Sick in the most publick Places of Resort, they enacted a Law, injoining every one who pass'd by to give his Advice to the Distress'd; on a Supposition, that he might have formerly labour'd under the same Disorder, and receiv'd Relief from some particular Remedy. This was the second Step which the *Babylonians* and *Chaldeans*, these most antient Sources of human Literature, made towards the Improvement of Medicine; which, when carry'd into *Egypt* in this imperfect State, was gradually more and more improv'd by that penetrating and industrious People; for by hanging up Tables in the Temples of the Gods, with the several Species of Diseases enumerated, and the most proper Remedies specified upon them, and by committing the Charge of each Disease to particular Physicians, they reduced their indigested and disorderly Experiments to a certain Form, more accommodated to Use and Practice than they formerly were.

At last Mankind being convinc'd, that Remedies alone were not sufficient to carry Medicine to a due Degree of Perfection, began to implore the Assistance of Ratiocination, the Use of which, in distinguishing and curing Disorders, they had long perceiv'd to be absolutely necessary. Upon this, as generally happens in Cases of a like Nature, Subtlety of Genius was prefer'd to the tedious Method of improving by Experience; and what ought to have gone Hand-in-hand, I mean Theory and Fact, were foolishly separated and disjointed; specious and fine-spun Speculations were, without considering their Influence on Practice, or their Conformity to Truth, obtruded on Mankind as the Basis of Physic, and the surest Foundations of Medicine. But though the Healing Art might, in this imperfect State, be cloathed in all the gaudy Pomp of Eloquence, and recommend itself to those of a speculative and philosophical Turn, yet it soon discover'd its Defects by proving prejudicial and fatal to the unhappy Patients. Nor will this appear a Mystery to him who considers the Affair in an impartial Light; for Health, as well as Diseases, are no more than stated and necessary Effects arising from a certain particular Concurrence of all those Circumstances, which, taken in Conjunction, operate as a Cause in producing its Effect. But before this Cause can be so clearly investigated, as that its Method of acting shall become the proper Subject of a mathematical Demonstration, each of its Properties and Virtues must be discover'd, and consider'd separately and apart; after which their mutual Relations must be diligently compar'd, and the additional Properties resulting from these Relations carefully investigated. Now as these Properties only come under our Cognizance, and manifest themselves to our Senses, by their Effects, it is obvious, that whether in a sound or a valetudinary State, the Cause, the Accidents, and Effects, must be investigated and describ'd, before we can either pronounce rationally, or prescribe judiciously: For the Physician is to encounter real Effects produc'd by their adequate Causes, which often, if not always, depend upon a Train of Circumstances of so peculiar and circumstantiate a Nature, that the Force of a general and abstruse Demonstration is by no means sufficient to qualify him for practising with Success. There is such an inconceivable Variety of Disorders, and in each of these so incredible a Number of Symptoms and Circumstances to be observed, that the short Period of human Life, the Frailties both of Body and Mind, to which Men are by the Condition of their Natures subjected, the Difficulties they have to encounter, and the Avocations with which they must unavoidably meet, can never enable any one Man to form a sufficient Number of Observations for establishing a rational and unexceptionable Theory, and practising according to it, like a real and skilful Physician. Hence 'tis obvious, that we must be indebted to the Knowledge of others, consult the Living and the Dead, peruse the Works of antient Sages, inquire into the Improvements of Moderns, and always make Truth the sacred Mark at which we aim. But lest we should at last miscarry in our Views, we must not wantonly drink at every Spring, nor draw our Stores of Knowledge from impure and turbid Fountains; for to read much is not always to be learned. The Physician therefore ought to contract his Views, form his Taste upon noble Models, despise the common Herd of Authors, and draw his Fund of Knowledge from those who represent Nature in her true and genuine Shape; from those who have too sacred a Regard to Honour to forge Facts for the Support of a favourite Theory; from those who follow Truth where-ever she leads them, and in their Accounts of Things disclaim, from partial and interested Views, either to add or suppress a single Circumstance. These are the sacred Fountains, of which the Physician can never take too liberal Draughts: These the Men whose Labours pave the Physician's Way to Glory and Honour. Ever since Physic assum'd the Appearance of an Art, the World has been blest'd with some one or other of this Stamp. *Hippocrates*, for Instance, in the very Dawn of Medicine, appear'd, and like the Sun in his meridian Splendor diffused a noble Light, which will for ever shine with distinguish'd Lustre. This venerable Man is to the Physician, what the Pole Star is to the Mariner, his Guide, his Director, and that of which when he loses Sight, he is sure to be bewilder'd, and err from his Course. The divine *Hippocrates* is always sure to represent Things as they are in their own Natures. He has no interested Views to serve, no particular Bias to draw him aside from Truth. He is always clear, always

concise,

concise, and intelligible. He no-where obscures his Meaning, throws a Cloud over the Natures of Disorders, or misrepresents their Symptoms and Terminations, by the unintelligible Jargon of the four Elements, or the still more absurd and ridiculous Whim of the four primary Qualities resulting from them. Vain and idle Controversies concerning the first Temperament of the simple Stamina of Life never hinder him from penetrating into the true Events of Things. The Purity and Glory of his Compositions are not stain'd and sullied with the useless Notions of the *Calidum Innatum*, and the *Humidum Radicale*. Subtile and uninstruative Distinctions of Diseases, and their several Causes, are not to be met with in the Works of this venerable Parent of the Healing Art. The Man deserves rather to be laugh'd at, than confuted in a grave and serious manner, who imagines that *Hippocrates* was misguided by the unmeaning Whims of unintelligible Chymists, and drawn aside by the specious Dreams of Acids and Alcalis. These were Speculations which his exalted Genius, and well-formed Taste, despised. He was no less conspicuous for the Impartiality of his Representations, than the Force and Strength of his Genius; for he no-where asserts Things which he had not seen, nor does he ever neglect to give a faithful Account of real Circumstances. He represents, but does not disguise or change, the Operations of Nature, in order to procure Honour or Stability to any particular Hypothesis. This is the amiable, this the lovely, I had almost said the perfect Character of the divine *Hippocrates*. No Wonder then, if his Accounts of Things, and his Descriptions of Diseases, have in all Ages procured the Attention, and attracted the Esteem, of the Sagacious and Discerning. To him we may justly add *Aretæus* of *Cappadocia*, and *Rufus Ephesus*, who, from his Example, became skilful Physicians, and were equally religious Observers of the Laws of Truth. But few of the *Greeks* trod in his sacred Footsteps before the Days of *Galen*. When the Labours of other *Greek* Physicians are laid in the Balance with these of *Hippocrates*, how light, how defective and imperfect are they found to be! Some of them, blindly and implicitly devoted to a particular Sect, espoused the Tenets peculiar to it, without regarding whether they were true or false; some of them dress up Things in false and fictitious Colours, whilst others, equally mistaken, are little solicitous about Facts, and are only taken up in investigating the physical Causes of Disorders, and their Symptoms. Besides, Penetration and Impartiality, a natural Simplicity of Style, a Clearness and Perspicuity of Diction, are requisite in the Physician. Health is of more Importance than Oratory; and Life a Circumstance of more Moment than striking Images, quaint Phrases, or well-turn'd Periods. The Physician must not trifle, or play the Fool, where Matters of the last Moment are at Stake. A foolish Affectation of uncouth and obsolete Expressions, the pompous Flowers of Rhetoric, or a pedantic Playing with Words, must never draw a Veil over his real Meaning, or divert the Attention of the Reader. An unreasonable Ostentation of an Acquaintance with ancient History, a pompous Enumeration of the Opinions of different Authors, or subtile Researches into the first Causes of Disorders, however effectually they may prove the Author's Learning, are yet of little or no Service either in the Cure, or in the Prevention of Diseases, in which the Whole of a Physician's Business consists. However agreeable Labours of this Kind may prove to speculative *Literati*, yet they never fail to create a Disgust in the Man who, being intent upon finding out the clear, the certain, and infallible Signs of Health and Sickness, thinks it his only Business to preserve the former, and find out proper Remedies for removing the latter. Despising therefore what the elegant Tongue, the fine Imagination, or the sparkling Genius, have wantonly advanc'd on physical Subjects, rather to display their Parts, than advance and improve the Art, we ought carefully to peruse the plain, the simple Writings of *Hippocrates*, in which the sacred Oracles of Nature herself are delivered pure and uncontaminated; where nothing is darkened by an Obscurity of Words; where every Line is richly pregnant with Thought and Sense; and where the most important Truths are told at once with *Laconic* Brevity, and *Attic* Perspicuity. This is the distinguishing Character of *Hippocrates*; in these respects none come up to him: For whoever applies to most other Authors for Improvement and Instruction, will, for the most part, either be glutted with nauseous Repetitions, or disgusted with barbarous Lumber; or, which is almost as bad, he meets with nothing but an affected and uninstruative Ostentation of an Acquaintance with the Languages, Antiquities, Hieroglyphics, and Fables. So few there are who consult the real Glory, the true and genuine Interests of Physic. For as amongst the *Arabians*, and barbarous Interpreters of *Galen*, there is a detestable and disgusting Impurity of Language, so among the more learned and polite Commentators on *Hippocrates*, there is more to be found that has a Tendency to form the shining Orator, than to produce the knowing and the skilful Physician. But there are still other Circumstances of greater Moment, which render the divine *Hippocrates* justly preferable to all others: Witness his unwearied and indefatigable Attention of Mind, which enabled him to view every Circumstance in the most proper Light; witness his unwearied and incomparable Diligence, by which he investigated and discover'd every thing which had the least Tendency to clear his Subject; witness the noble and generous Freedom with which he convey'd his useful Labours to the World. Which ever of these the impartial Mind considers, the divine *Hippocrates* will be found great beyond the Possibility of a Rival, and lucky beyond the Fate of Mortals; a Competitor with *Apollo* himself; and the *Esculapius* of the *Coans*. He was so quick-sighted an Observer of Nature, that in every Disorder he plainly knew her first Deviations, her present Irregularities, and the Periods where she would terminate. If we attentively advert to the accurate Distinction he makes between those Symptoms that are the Effects of Ignorance in the Physician, Negligence or Rashness in the Attendants, or of the Medicines used, and these that are the natural Result of the Disease itself, we cannot forbear pronouncing him the most discerning, the most judicious and penetrating, of all the Physicians the World has hitherto seen. And, which is more, the joint Labours of all the physical Writers who have appear'd from the Infancy of Medicine to this very Day, scarce furnish us with so large a Number of the Symptoms and Phenomena of Diseases, as this great and incomparable Author has alone describ'd. He first discover'd the various Seasons of the Year to be the Causes of the particular Disorders which generally rage in them; and taught, that the Vicissitudes of the Air, the scorching Heats, and pinching Colds, the Showers and Fogs, the stagnating Atmosphere, and the impetuous Blasts of Wind, were productive of their respective Disorders. From the Situation of Countries, the Nature of Soils, the Motion or Stagnation of Waters, the Exhalations of the Earth, and the Position of Mountains, he accounted for the Causes of endemial Disorders; and by that means preserved whole Nations, sav'd Kingdoms, and, like the Sun, diffused an universal and a happy Influence. By examining the Course of Life, the Food, the Drink, and the Customs of particular Nations, he found out the Source of the Disorders to which they were most subject; and in all he does, he is so minute and circumstantiate, that to the shallow and superficial Genius he appears trifling; but to the Sagacious and the Judicious, distinct, accurate, and important.

His Work *De Aere, Locis, & Aquis*, is such a Master-piece, that it may be said not only to have laid the Foundation, but to have carry'd Physic almost to the same Degree of Perfection with which it now shines. Here we have the venerable old Man accurately describing epidemical Disorders, and sagaciously informing us, that we are not only to have a regard to the Differences of Age, Sex, and Constitution, but also to the Exercise, the Customs,

Customs, and the Method of Life, used by the Patient ; and that an Account of the State of the Air alone is not sufficient for accounting why some should be more remarkably afflicted with epidemical Disorders than others. We shall here find him describing the Eyes, the Hair, and the Skin, in a just and accurate Manner ; and making the most judicious Remarks upon the voluble and the stammering Tongue, upon the shrill and the grave Tone of Voice ; and all this with a View to discover, and point out, the particular Temperament and Constitution of those who were more subject to raging Disorders, than others who wanted these Characteristics. Hence 'tis obvious, that none ever deliver'd the diagnostic Signs of Diseases with greater Exactness, described the Disorders with which these Signs were connected with greater Accuracy, or form'd a more just and infallible Judgment with regard to their Events and Terminations, than the divine *Hippocrates*. Nor was he less happy in discovering the Natures, Symptoms, and various Turns, which Diseases might take, than successful in relieving the miserable Patient from the Fury of their Assaults ; for he was neither rash in applying his Medicines, hasty in judging of their Effects, afraid of confessing his want of Success, nor proud of his Skill, when every thing answer'd his Expectations. Diseases, like weak and feeble Enemies, yield themselves the willing Captives of his Skill ; he leads them where-ever he has a Mind, and, at last, destroys the very Seeds of their Existence ; and, for all these mighty Purposes, he used Medicines which were few in Number, but sure in their Effects, and of a small Price, but excellently accommodated to the Disorder. He was not solicitous about a Variety of Medicines, provided he found a few that were necessary, and knew how to exhibit them at proper Seasons, and in due Quantities. Accurately viewing the Stages and Periods of Diseases, observing their lucky or unlucky Days, checking or forwarding the Motions of the morbid Matter, digesting its Crudities, carrying what was concocted thro' Ways pointed out by the Disease itself, directing its Elimination, and bringing what was recrementitious and superfluous to a proper State of being expel'd, he was rather an Imitator and Assistant of Nature, than a bold Intruder upon her Province, or a rash Disturber of her Operations. After Chance or Skill had discover'd to him what Medicines were prejudicial, and what were salutary, and after he had found the Time and Manner in which Nature, left to herself, routs her Enemy, he then establish'd Rules for the safe and proper Use of Medicines. After these Medicines were recommended by a long Course of daily Experience, and had the Sanction of a thousand happy Cures in their Favour, he thought himself sufficiently qualify'd to describe the Virtues of Herbs, Fossils, and Animals, not in a dry, a barren, and uninstrusive Manner, but enrich'd with the most valuable Cautions and Admonitions, sufficient to deter the Ignorant, the Bold, and the Unskilful, from encroaching on the sacred Province of Physic. This, to speak with Impartiality, is the true, the only Method, to support the Dignity of Medicine, and afford proper Relief and Assistance to the Distress'd and Afflicted. This is the admirable, the useful, the divine Method, illustrated by the Writings, and recommended by the Practice, of *Hippocrates*. But, since his Days, Physic has assum'd various, but still less lovely Forms. Experience has been neglected, and the wanton Sallies of a roving Imagination been greedily listen'd to. At other Times, a supine Indolence has tarnish'd the Glory of Medicine. Fact and Observation have fallen lamented Victims to the Tenets of Philosophers. The Dictates of Nature have been shamefully banished, to make room for an unintelligible Jargon of Words ; and monstrous Fictions have been prefer'd to the sacred and important Observations of *Hippocrates*. Surprising Cures are now impudently said to have been perform'd by such and such Medicines ; but, when these are exhibited in parallel Cases, the miserable Patient is left to bewail his Misfortune, by having his Disorder increased and exasperated, instead of being allay'd and remov'd. The Condition of Humanity is already too wretched to call for the Addition of those intolerable Evils with which Avarice, and its deform'd Offspring Quackery, supply the deceiv'd and bewilder'd World. The Conceits and extravagant Whims of the Chymists have no less shamefully disguis'd the genuine Form, and chang'd the native Features, of Medicine ; and the noblest of Arts has been prostituted to the meanest and most ignoble Purposes, by being made basely subservient to the Ends of Quackery and Empiricism. And, what is still more to be lamented, Men of Parts and Abilities, who might have otherwise prov'd Blessings to Mankind, have been fatally and wofully misled by Impositions of this kind. And, as if the Number of Simples was not already too great, the Confusion of compound Medicines too intolerable, and the Variety of Methods too insupportable, they must enlarge the Prospect, and add the impertinent Productions of Error and Impudence. But the Writings of *Hippocrates*, like pure and limpid Fountains, are neither stain'd with Falshoods, darken'd with Ignorance, nor fully'd with the boasting Frauds of Quackery, or the forbidding Vanities of Chymistry : He is every-where so clear, so distinct, so copious and full, that he may safely be pronounc'd the greatest and most perfect Master of the Healing Art, the World has hitherto seen. Some may possibly think this repugnant to Truth, because, say they, Medicine is improv'd by Observation, and has receiv'd incredible Advances since the Days of *Hippocrates* ; so that, in his Time, the Art must have been rude, imperfect, and, as it were, in its Infancy. This is, in some measure, true ; but 'tis equally true and certain, that *Hippocrates* had the Experience and Improvements of Numbers who had gone before him, to form himself upon ; for we are told by authentic and unexceptionable Historians, that *Hippocrates*, lineally descended from *Apollo*, the first Physician among the *Greeks*, possess'd, by an hereditary Right, the Secrets of the Medicinal Art. *Æsculapius*, the Son of this *Apollo*, perfected the Secrets handed down by his Father, and left them enlarg'd with his own. From *Æsculapius* sprung those celebrated Physicians, *Chrysamides*, *Cleomittades*, *Theodorus*, *Sostrates*, *Nebrus*, *Cnosidicus*, *Hippocrates* the First, and *Heracides*, the Father of the divine *Hippocrates*, of whom we now speak ; so that the Art of Physic seems to have been convey'd from Father to Son, till it reach'd this divine, this incomparable Genius, who, according to the historical Accounts of the Family, was the nineteenth from the common Stock. To these Circumstances if we add his Care, his Diligence, the Length of his Life, his Travels thro' *Babylon*, *Egypt*, and the *Indies*, we shall easily perceive, that he must have had a large Fund of experimental Knowledge. But, unsatisfy'd with the Instructions handed down from his Ancestors, and the Stores of Wisdom he had treasur'd up in his Travels, he apply'd himself, with indefatigable Diligence, to gain an Acquaintance with the Opinions and Sentiments of others. There was, at this Time, a celebrated Temple in *Cnidus*, whose Walls were adorn'd with Tables, on which were wrote the choicest and most valuable Observations in Physic : These he visited, these he wrote out for his own Use, and acquired such a Degree of Reputation, that he was thought worthy to be let into all the Secrets of the *Cnidian* School. We have no Reason to believe, that Medicine was a Science so imperfect and barren as 'tis thought to have been in the Days of *Hippocrates*, when we are inform'd by the Histories of these Times, that it was divided into Sects, consign'd to Writing, and promoted by the Aid and Concurrence of other Sciences, as may be seen by any one who consults his Books, concerning the antient State of Physic, wholesome Food, the Regimen of Patients under acute Diseases, and his Chirurgical Pieces, all which are wrote in the genuine and uncounterfeited Style of *Hippocrates*. Among the numberless Instances in which he improv'd both that Knowledge he had receiv'd from his Ancestors, and that which he had learn'd in foreign Nations, there is one of a singular Nature, and entirely peculiar to himself ; for he sent his elder Son *Theffalus* into *Theffaly*, *Draco* his younger Son to the *Hellepont*, *Polybus* his Son-in-law to another

another Quarter of *Greece*, and a large Number of his Scholars all over the Country, after having duly instructed them in the Principles of their Art, and furnish'd them with every thing necessary for Practice. These were order'd to cure the Sick expos'd on the Highways; to observe the Terminations of Diseases; to advert carefully to the Operations and Effects of Medicines, and to give a faithful and impartial Account of all to their great and worthy Constituent *Hippocrates*. These, to be sure, were a Set of the most fortunate Circumstances that ever yet concurred to the Formation of any one Physician; and the divine *Hippocrates* well knew how to make the best Advantage of them; for from the Labours and Observations of this large Number of Physicians, form'd upon his own Model, judging, as it were, with his own Eyes, and practising upon his own Principles, he form'd the most perfect, the most extensive, and the most judicious Body of Physic. Other Physicians see only with their own Eyes, but *Hippocrates* saw with those of a large Number of others. Most Practitioners draw their Knowledge from a scanty Number of Patients, but *Hippocrates* was supply'd from every Invalid in *Greece*. Few practical Authors have describ'd the Diseases which rage in a single Town, but *Hippocrates* has judiciously animadverted on all the Disorders that occur'd thro' all the Towns, Villages, and Provinces of *Greece*. This is, no doubt, a sufficient Reason why *Hippocrates* should appear so much superior to others, who were destitute of the like Opportunities, and plac'd in less favourable Circumstances: Hence it happens, that his Labours have stood the Shocks of Envy, the Assaults of Opposers, and the Malice of Critics, for so many Centuries, and, like burnish'd Steel, become the more bright and resplendent by Use. When perus'd with the nicest Judgment and the strictest Care, the smallest Inconsistence cannot be found, and Truth and Nature every-where appear in their most awful and commanding Shapes. Upon the whole, so accurate and extensive was the Skill of *Hippocrates*, that the learned *Greeks*, the polite *Romans*, and the industrious *Arabians*, have done nothing but repeat and confirm his Doctrines; whatever is or was excellent among the more celebrated *Greeks*, such as *Diocles*, *Arctæus*, *Rufus Ephesus*, *Soranus*, *Galen*, *Ægineta*, *Trallian*, *Aetius*, and *Oribasius*, is originally borrow'd from *Hippocrates*. The more valuable and judicious of the *Romans*, such as *Celsus* and *Pliny*, had recourse to the Determinations of *Hippocrates*, as to so many Oracles. The *Arabians*, again, did nothing but transcribe from *Galen*, who, where-ever he conforms to Truth, is nothing more than a Transcriber from *Hippocrates*. The Worth of this Author is still confirm'd from a Circumstance, which, if inquir'd into, will, at least, be found, for the most part, if not universally, to prove true; and that is, that, in all Ages, the most celebrated and distinguish'd Physicians have either form'd themselves immediately upon *Hippocrates*, or upon those who had done so before them. His Merit could not be confin'd to particular Parts of the World; it diffus'd itself with irresistible Force, and procur'd him the Esteem and Veneration of the *Thessalians*, the *Coans*, the *Argives*, the *Macedonians*, the *Athenians*, the *Phocians*, and the *Dorians*. The *Illyrians* and *Peonians* ador'd him as something more than human, and *Barbarian* Kings publicly implor'd him as their tutelar Genius; powerful and opulent Nations rewarded his Merit by munificent Presents; and Histories inform us, that Physicians have, in all Ages, been recommended to Potentates, and loaded with Glory, Honour, and Riches, by treading in the Steps of *Hippocrates*.

As I am convinc'd, that the most important Service I can do to Physic is, to give Mankind a Relish for the Writings of the great *Hippocrates*, I shall add, to what has been already said, the following Quotation from *Hoffman*, in Confirmation of my own Opinion.

“As *Hippocrates* was the first who laid a happy and sure Foundation for a rational and successful Practice, so we have just Reason to be surpris'd, that, in succeeding Ages, the Healing Art has not been carry'd to a higher Degree of Perfection than it really is. This Misfortune is owing to the foolish Conduct of the Successors of that great Physician, who, forgetting Facts, and disregarding Observations, rather corrupted the Art, by reasoning upon precarious Principles, than enrich'd it by a proper Store of necessary and useful Observations. As then the Miscarriages of our Predecessors, the Barrenness of Physic, and the Imperfection of Medicine, have unquestionably been owing to this unlucky Turn, we ought to beware of splitting on the same Rock, and falling into a like Error, since, by treading in the Steps of the divine *Hippocrates*, by supplying his Defects by our own Industry, and by an accurate and unwearied Observation of Facts, we might render both the Theory and Practice of Physic far more perfect, than they at present are.”

Hippocrates left two Sons, *Thessalus* and *Draco*, who succeeded their Father in the Practice of Physic; and one Daughter, whom he marry'd to *Polybus*, one of his Pupils. Of these Sons *Thessalus* seems to have been the most eminent; for we learn from *Galen*, that he spent the greatest Part of his Life in high Reputation at the Court of *Archelaus*, King of *Macedon*. As to *Draco*, the other Son, we find nothing very remarkable relating to him, except that he had a Son nam'd *Hippocrates*, who was Physician to *Roxana*, the Queen of *Alexander* the Great. *Polybus* seems to have made a greater Figure in his Profession than the two Sons of *Hippocrates*, and is said to have been the genuine Author of some Treatises attributed to his Father-in-law. *Galen* commends him for his Industry, and celebrates him for his Experience. His System and Practice were, according to the same Author, exactly conformable to those of *Hippocrates*.

The first celebrated Physician who appear'd after *Hippocrates* and his Offspring was *Diocles Carystius*, whose Skill was so extensive, that the *Athenians* dignify'd him with the honourable Title of *Hippocrates the Second*. All antient Authors agree, that he appear'd soon after *Hippocrates*, and succeeded him at once in respect of Time and Reputation. He is said to be the Author of a Letter, still extant, address'd to *Antigonus*, King of *Asia*; a Circumstance which sufficiently intimates, that he liv'd in the Days of that Successor to *Alexander*, and not in the Time of *Darius Hystaspis*, as some modern Authors have affirm'd. But the Errors of Chronology, with respect to the pretended Letters of *Hippocrates*, lay a sufficient Foundation for our not putting a great Stress upon a Proof of this Nature, since the Letter, said to be wrote by *Diocles*, may be equally spurious with the rest. They who have made *Diocles* contemporary with *Darius* the Son of *Hystaspes*, have not sufficiently adverted to what they said; since, in that Case, he must have gone before *Hippocrates*, which Circumstances prove to be impossible. They who suppose him to have been contemporary with *Antigonus*, are not, whatever may be said to the contrary, much mistaken. *Diocles*, who certainly appear'd after *Hippocrates*, and who is found to have liv'd before *Praxagoras*, who was Preceptor to some Physicians, Contemporaries with *Ptolemy Soter*, may have possibly liv'd much about the Time of *Aristotle*. Taking this for granted, it is not impossible but *Diocles* might have surviv'd *Aristotle*, and consequently might have seen the Beginning of the Reign of *Antigonus*, and the other Successors of *Alexander*, who dy'd about two Years before *Aristotle*. This may be advanc'd for the Possibility of *Diocles* having wrote to *Antigonus*. Abstracting from these Circumstances, Mr. *Le Clerc* believes the former more antient than *Aristotle* by some Years.

This Letter of *Diocles* contains Precepts relating to the Preservation of Health. These Precepts consist in predicting Diseases by certain Signs, and preventing them by certain Remedies. The Body is, in it, divided into four Parts, the Head, the Breast, the Belly, and the Bladder. In it we have also Remedies for preserving these four

Parts from the Distempers commonly incident to them. With respect to the Head, Gaigarisms are propos'd for purging it, and Frictions are recommended; with respect to the Breast, Vomits, either upon a full, or an empty Stomach, are prescrib'd; as for the Belly, 'tis order'd to be kept easy and open, not by Medicines, but by a proper Regimen, the Use of Blites, the Herb Mercury, boil'd Garlick, sharp-pointed Dock, Water in which Cabbage has been boil'd, and Preparations of Honey; lastly, with respect to the Diseases of the Bladder, some Medicines, which provoke Urine, are prescrib'd, such as the Roots of Apium and Fennel, boil'd in Wine, with Water in which wild Carrot, Alexanders, Elecampane, and Chiches, have been boil'd.

This is a succinct Account of the Contents of this Letter, which seems to be a kind of Extract from some Books of *Diocles*, in which he treated fully of the Preservation of Health, and of such Substances as are proper for that Purpose. One of these Books was address'd to *Plutarchus*. *Diocles* wrote some others, which are lost, as well as these we have now mention'd. *Athenæus* makes mention of a Book, in which that Physician treats of Fishes; and of another, in which he taught the Method of preparing Aliments. The same *Athenæus* also informs us, that several antient Physicians wrote upon the last of these Subjects. Among others who had done so, he mentions *Philistion*, *Erasistratus*, *Philotimus*, *Euthydemus*, *Glaucus*, and *Dionysius*. Their Design, in these Writings, was not, in all Probability, to direct what was agreeable to the Palate, but what contributed to the Preservation of Health. *Plato* nevertheless complains, that the Art of Cookery being introduced into Medicine, under a Pretext of rendering Aliments more salutary, produced a quite contrary Effect. This Philosopher also maintains, that the Art of Cookery is the same with regard to Medicine, as the Arts of Painting and Perfuming are with regard to the Gymnastic Art. From this Passage we must observe, that in the Times of *Plato* People had begun to write upon this Subject; and perhaps what that Author says, may relate to the Books of *Diocles*, who, in all Probability, wrote during the Life of that Philosopher.

Diocles compos'd another Book concerning Diseases, their Causes and Cures. Of this Work *Galen* quotes a Fragment relating to a Disease which *Diocles* call'd the melancholic or flatulent Disease, and which he described in this manner. "There is, says he, a Disease, by some call'd the melancholic Disease, by others, the flatulent or windy Distemper, in which the Patient, after eating Aliments of a difficult Digestion, discharges a large Quantity of clear Saliva. He is also afflicted with acid Eructations, Flatulences, Heat of the Hypochondria, and a Murmuring of the Intestines not immediately upon eating, but some time after. He feels sometimes also great Pains of the Stomach, and in some Patients these Pains affect the Back itself. When the Aliments are digested, all these Symptoms cease, but return when the Patient takes his next Meal. The same Symptoms sometimes also appear when the Patient is fasting, and sometimes immediately after his Meals; so that he often vomits up his Aliment crude, and often hot and bitter Phlegm, or acid Phlegm, by which the Teeth are set on Edge. These Disorders, for the most part, begin when the Patient is young; but at whatever time they appear, they generally last a great while. We may reasonably suspect, continues *Diocles*, that they who are afflicted with this Disorder, have a preternatural Heat in the Veins, which receive the Aliment from the Stomach; and, that the Blood which they contain is inspissated; for we have a manifest Proof, that these Veins are obstructed and blocked up, since the Nourishment is not distributed thro' the Body, but remains crude in the Stomach, and instead of passing into the Intestines, which ought to receive it, and carry it into the lower Belly, it is discharged the following Day by Vomit. Another Proof that there is a preternatural Heat in these Veins is, that the Patients are in reality very hot, and relieved by the Use of cooling Substances. *Diocles* adds, that some affirm, that in Disorders of this Kind the Orifice of the Stomach, which communicates immediately with the Bowels, is inflamed, and that this Inflammation causes the Obstruction, and hinders the Aliments from passing into the Bowels at the accustomed Time; so that, remaining in the Stomach, they produce the Inflation, the Heat, and the other Symptoms mentioned."

Diocles also treated of the Diseases peculiar to Women, and of Plants; he compos'd a Book intitled, *The Shop of the Physician*, which is the same Title *Hippocrates* has given to one of his Books. He also wrote a Book intitled, *περί ἐξομολογίας*, or concerning the Weeks, probably meaning the Weeks of Gestation.

As for the Practice of *Diocles*, it was almost the same with that of *Hippocrates*. He let Blood, and purged in the same manner, and for the same Intentions. *Celsus Aurelianus* gives us a fuller Account how he treated particular Diseases. The same Author also informs us, that he order'd Bulls-glew boiled in Water with Meal and Brambles to be drunk by those who were afflicted with a Spitting of Blood. He also prescrib'd swallowing a small Ball of Lead for those who were afflicted with the *Ileus*. This Remedy is not mentioned by *Hippocrates*. Besides, he made a Distinction between the *Ileus* and *Chordapjia*, two Names which *Hippocrates* seems to give to one and the same Disease. But *Diocles* was of Opinion, that the Chordapjia was a Disorder of the large Intestine.

Galen also informs us, that *Diocles*, as well as *Hippocrates*, practis'd Physic from a Principle of Humanity and Compassion, and not from the more base and ignoble Motives of Interest and Glory, as most other Physicians do. *Galen* elsewhere speaks of him as a great Physician, and asserts, that his Skill was very extensive. *Diocles* said, that those were not to be confided in, who imagin'd that there was a Possibility of accounting for every thing. He also affirm'd, that we might justly depend upon a Remedy we had often experienced, tho' we should be entirely ignorant of the Cause productive of the Effects which follow its Exhibition; but that it was nevertheless expedient to inquire after the Cause, that we might be the better able to assure those with whom we have to do of the Effects.

Praxagoras is the next Physician who made any considerable Figure. Mr. *Le Clerc* supposes him to have been somewhat younger than *Aristotle*. He was Son to *Nearchus*, of the Isle of *Cos*, and of the *Æsculapian* Family, of which he was the last, of any considerable Reputation. The celebrated *Herophilus* was his Pupil: He was of the Dogmatic Sect; but seems to have been one of the first who deviated from the Method of *Hippocrates*. For we learn from *Rufus Ephesus*, and *Galen*, that he account'd for Diseases from the Qualities of the Humours, of which he reckon'd ten Sorts, besides the Blood; and as this Theory probably had some Influence on his Practice, it would be more likely to lead him into Errors, than to guide him right. *Praxagoras*, as we learn from *Celsus Aurelianus*, made great Use of Vomits in his Practice, insomuch as to exhibit them in the *Iliac Passion*, till the Excrements were discharged by the Mouth. In this Distemper he also advis'd, when Medicines fail'd, to open the Belly, cut the Intestine, take out the indurated Fæces, and then to sew all up again; a Piece of bold Practice, which has not been followed by succeeding Physicians.

Celsus, L. 2. C. 9. takes Notice of *Petron* a Physician, who liv'd before *Herophilus* and *Erasistratus*, but after *Hippocrates*, whose Practice it was to cover his Patients, when labouring under a Fever, with Heaps of Cloaths,

Cloths, in order to excite a vehement Heat and Thirst. Afterwards, when the Fever began a little to remit, he gave them cold Water to drink; and if by such means he could get them to sweat, he judged that he had effectually relieved them. If no Sweat was procured, he gave them more cold Water, and then forced them to vomit. If either way he freed the Sick from the Fever, he immediately treated them with roasted Swines-flesh and Wine. If he failed of expelling the Fever, he boiled Water and Salt together, and made the Patient drink it, till it both vomited and purged him.

By the Account I have given of *Hippocrates*, and his Method, we may perceive, that if he did not bring the Art of Physic to the greatest Degree of Perfection of which it is capable, he, at least, left it in a fair way to be improved, and pointed out the most rational Methods for its Advancement. The present State of Physic, and the perpetual and too successful Attempts which have been made in all Ages by Philosophers of all Sects, to destroy the Progress it had already made, and retard its farther Improvement, give us abundant Reason to lament, that the Scheme of *Hippocrates* was not pursued; for in all succeeding Ages, we shall have the Mortification of finding subtle Hypotheses, trifling Distinctions, whimsical, or at best uncertain Causes, and an unmeaning Jargon of Words, substituted instead of Details of Facts established by accurate Observations, and of unquestionable Events confirmed by Experience. I am abundantly sensible, that Physicians in all Ages, who have founded their Practice upon Hypotheses built upon any Philosophy whatever, have this to say in Support of their Theory, That many of their Patients have recovered. This Argument might be of some Force, provided there were no Distempers so mild, and no Constitutions so strong, as scarcely to permit a Patient to sink under any sort of Treatment; but it does not amount to an Evidence, that Numbers have not perished, for one that has escaped.

Amongst those who have attempted to reason Experience out of Countenance, one of the first was *Chrysippus*, a Physician of *Cnidos*, whom Mr. *Le Clerc* places about the Time of *Philip*, the Father of *Alexander the Great*. *Pliny* reports, that he overthrew the Maxims of preceding Physicians by his excessive Prating (*multa garrulitate*). *Galen* tells us, that he disapproved of Venesection, and condemn'd Purgatives, tho' he sometimes made use of Emetics and Clysters. We cannot possibly be acquainted with the Reasons he had for his Conduct in these Particulars, because his Works, which were become scarce in the Time of *Galen*, have not reach'd our Hands; and because *Galen* does not take so much Notice of *Chrysippus*, as of *Erasistratus* his Scholar, who was of the same Sentiments with his Master.

Aristotle is more famous for his Philosophy, than for any Medicinal Knowledge he possessed. As it does not appear, that he was much concern'd in the Practice of Physic, I shall not trouble the Reader with a Detail of his Philosophical Romances, but proceed to his Pupil *Alexander*, who seems to have been the Cause of greater Improvements in Physic than his Tutor. This Prince by his *Indian Expedition*, and the Foundation of *Alexandria*, open'd a Commerce to the *East* unknown to the *Egyptians* and *Greeks* before his Days; and, in consequence of this, the *Materia Medica* was enriched with many Aromatics, and Medicinal Drugs, which we find no Account of before this Era. The *Arabians* have a Tradition, that the Fleet of *Alexander*, in its Return from *India*, touch'd at the Island of *Succotra*; and finding Plenty of the best Aloes there, this Monarch transported the Inhabitants to some other Country, and settled a Colony of *Greeks* in their Island, to whom he committed the Care and Cultivation of Aloes. This Story receives no small Confirmation, from the Accounts given us of the above-mention'd Island by modern Travellers, who relate, that it is inhabited by two very different Sorts of People; some of which are black, and have woolly Hair; the others white, with long Hair like the *Europeans*. It is, however, certain, that no Author before the Time of *Alexander* takes Notice of that insipidated Juice, which is called *Aloes*; and that, soon after the Foundation of *Alexandria*, we find it mentioned by most Authors who wrote on Medicinal Subjects.

Erasistratus was a Native of *Iulis* in the Isle of *Cea*, or *Ceos*. *Suidas*, from whom we have this Account, adds, that this Physician was buried over-against *Samos*, upon Mount *Mycale*. This Circumstance perhaps, induced the Emperor *Julian* to think, that *Erasistratus* was a Native of *Samos*. *Stephanus Byzantinus* is evidently mistaken, when he affirms him to be a Native of *Cos*, the happy Island which gave Birth to the divine *Hippocrates*, since he took *Cos* for *Ceos*. *Chios* is also by some Authors taken for the native Country of *Erasistratus*; because the Name approaches pretty much to that of *Ceos*.

There is also some Difficulty in ascertaining the precise Time in which *Erasistratus* lived. *Eusebius* is of Opinion, that he flourish'd under the Reign of *Ptolemy Philadelphus*, or about the hundred and thirty-first Olympiad. But in all Probability he must have been somewhat older, otherwise he could not have exercised his Profession, and acquired so great a Character in the Days of *Seleucus Nicator*, who died in the hundred and twenty-fourth Olympiad, twenty-eight Years before the Time specified by *Eusebius*. But that *Erasistratus* had acquired an uncommon Fame before the Death of *Seleucus*, is obvious, from the celebrated Story of *Antiochus* falling in Love with *Stratonice*, the second Wife of *Seleucus* his Father, and being cured of his Passion by this Physician.

The Character *Erasistratus* bore among the antient Physicians, renders it highly necessary to give some Account of his Practice. *Galen* then affirms, that this Physician, as well as his Master *Chrysippus*, entirely banish'd Venesection from Medicine; and in Support of his Assertion, produces the Testimony of one of the principal Scholars of *Erasistratus*, called *Strato*, who commends him for having treated without Venesection all those Diseases in which the Antients us'd it. He also proves it from this Circumstance, that in all the Works of *Erasistratus*, Venesection is only once mentioned, when talking of a Vomiting of Blood; and that with a Design to shew, that it was useless in that very Disorder. From the Writings of *Erasistratus* himself, it was also obvious, that he neglected to bleed one *Crito*, who died of a Quinsy, and a young Girl of *Chios*, whose Blood regurgitated on her Lungs, in consequence of her Menstrues being obstructed, and who also died. One of the Remedies, by which *Erasistratus* supply'd the want of Venesection in Hemorrhages, was the Application of Ligatures on the Extremities, the Arms for Instance, and the Legs. The rest of the Cure was principally performed by Regimen.

Tho', from what has been said, we might be tempted to think, that *Erasistratus* declared against Venesection in general, yet his Abettors and Followers maintain, that he did not absolutely condemn it, tho' he us'd it less frequently than other Physicians. *Caelius Aurelianus* is of the same Opinion; for he assures us, that, in Hemorrhages, *Erasistratus* us'd Venesection; and adds, that only some of his Followers condemn'd that Practice. But this Assertion is directly contrary to that of *Galen*.

Galen assigns one Reason why *Chrysippus*, the Master of *Erasistratus*, disapproved of Venesection, which is, That the Abstinence injoin'd to Patients, especially in Fevers and inflammatory Disorders, render'd it improper, for fear of weakening them too much. But he adds, that the Disciples of *Erasistratus* were not agreed among themselves

themselves as to the Reasons why their Master condemned Phlebotomy. *Apemantus* and *Strato*, continues he, advance very frivolous ones for his so doing. What they say on this Subject may be reduced to the following Particulars. "It is difficult to succeed in Venesection, because we cannot always well discern the Vein we intend to open, and because we are not sure but we may mistake an Artery for a Vein. Some have died thro' Fear, or in consequence of a Deliquium, either before or after the Operation. Others of his Disciples affirm, That we cannot know the precise Quantity to be taken. If, say they, we take too little, the Intention is by no means answered; if, on the contrary, we take too much, we run a Risque of destroying the Patient. Others of the Followers of *Erassistratus* affirm, that the Evacuation of the venous Blood is succeeded by that of the Spirits, which, on that Occasion, pass from the Arteries into the Veins. Others of them affirm, that as the Inflammation is formed in the Arteries by the Blood, coagulated in their Orifices, Venesection must of course be useless, and of no Effect."

As *Erassistratus* did not approve of Venesection, so neither did he prescribe Purgatives, except very rarely, tho' he exhibited Clysters and Vomits, as did his Master *Chrysippus*. But he was of Opinion, that Clysters should be mild, and condemned the large Quantity, and the acrid Quality, of those used by the Antients. The Reason why Purgatives were not much used by him, is, that, in his Opinion, Purging and Venesection answered the same Intention, since they had an equal Tendency to diminish Plenitude; for which Purpose he maintained, with *Chrysippus*, there were surer and more effectual Means than either Phlebotomy or Purgation. He asserted, that the Humours, discharged by Purgatives, were not the same in the Body they appeared to be after their Discharge; but that Cathartics change their Nature, and produce a kind of Corruption in them. This Opinion has been since embraced by a great Number of Physicians.

We must also observe, that *Erassistratus* did not believe, with *Hippocrates*, that Purgatives acted by Attraction; but he substituted in the room of this imaginary Attraction, what he called τὴν πρὸς τὸ κενούμενον ἀκολουθίαν, which Mr. *Le Clerc* imagines to be somewhat like the *Aristotelian Fuga Vacui*, Abhorrence of a Vacuum. With regard to particular Humours being evacuated by particular Medicines, some of his Disciples asserted, that the most subtle and attenuated Humours were discharged first, and the coarsest and thickest last; so that the weakest Medicines discharge only some Waters; such as are a little stronger discharge Bile; and those which are most drastic and powerful of all, purge black Bile: But *Galen* objected against this Explication, as not agreeable to the real Sentiments of their Master. *Galen* also makes mention of a Medicine in a solid Form, in which Castor was an Ingredient, and which *Erassistratus* used in order to purge, or at least keep the Belly soluble: But it is not known what purgative Ingredients he mixed with the Castor, since the Composition is not described by *Galen*, who adds, that if it was purgative, *Erassistratus*, in all Probability, used it very rarely.

The principal Remedy he substituted in the room of Venesection and Purgatives, was Fasting or Abstinence. When this, in Conjunction with Clysters and Vomits, was not sufficient to remove Plenitude, which, according to him, was the most general Source of all Disorders, he then had recourse to Exercise. *Erassistratus* not only look'd upon the Fulness of the Veins, as the original Cause of Diseases, but also maintained, that this Fulness was followed by a Transfusion of the Blood from the Veins into the Arteries, and consequently by a Fever and Inflammation. He also acknowledg'd another particular Species of Plenitude, which was that of the Part affected. Of this there is an Example, in the History given of the Disease under which *Crito* labour'd. This Disorder, which was a Quinsey, he calls synanchic Plenitude; that is, continues he, an Inflammation of the Amygdalæ and Uvula. He might, with equal Reason, have call'd an Apoplexy an apoplectic Plenitude; and a Pleurisy a pleuritic Plenitude, or a Plenitude of the Pleura. At this rate Plenitude was continually both the Cause, and the Genus or Kind, of the Disease.

But to return to his Method of preventing and curing Diseases by Abstinence and Exercise. He advises, "That those who have been accustomed to much Exercise, should use a little more than they ordinarily do, when they perceive a Plenitude in themselves, that by this they may prevent a Disease. After they have used sufficient Exercise, they are to go into a warm Bath, in order to sweat. After this, if they find themselves overheated, they are for some Days to use the cold Bath. When this is done, let them keep themselves in a State of Ease for some time longer, and use a very small Quantity of Aliments, abstaining from Dinner entirely, and Supping very moderately. They ought also to take care, that the Aliments they use, should possess as little of a nutritive Quality as possible. Of this Kind are most Species of Herbs, whether crude or prepar'd; as also Citruls, Cucumbers, Melons, Figs, and Pulses, which ought to be boil'd with Herbs. The Bread they eat ought also to be very good. By this Regimen they will not only keep their Bodies soluble, but live upon such Aliment as is not too strong. The Reverse of this would happen, if they should live upon Flesh, Fish, or Aliments either entirely consisting of Meal, or those in which Meal is an Ingredient; since these are too nourishing, and consequently ought not, on such Occasions, to be used at all, or at least very sparingly. This Regimen must carefully be follow'd, in order thoroughly to remove Plenitude, which is the Cause of Distempers. As for those who are not accustomed to strong Exercise, or hard Labour, they reap no great Advantage from exercising themselves much, though Exercise in itself is very proper for evacuating the Superfluities of the Body. For those who vomit easily, Emetics are always useful after Supper, provided too long a Time does not intervene between Supper and the Emetic to be taken, so that they may vomit almost at the very Time when the Chyle has fully distributed itself, and the remaining Mass of Aliments is still lodg'd in the Stomach. The following Day they must bathe and sweat, and afterwards return gradually to their ordinary and accustomed Course of Life.

As Plenitude, continues *Erassistratus*, occurs in various Parts, the Liver, for Instance, and the Abdomen, and as, in some Patients, it produces Epileptic Fits, and, in others, Pains of the Joints, the Cure of these Patients must, of course, be differently regulated. They, for Example, who are inclin'd to Epilepsies, ought not to be treated in the same manner with those who spit Blood: The former ought to be in continual Exercise, whereas the latter ought to avoid Fatigue and Labour, lest the Vessels, already open, should be render'd still more so. Patients, subject to the Epilepsy, ought continually to expose themselves to Labour and Fatigue, to eat and drink very little, to bathe rarely, and avoid every thing which has the least Tendency to produce either too great, or too sudden, a Change in the Body. On the contrary, they who are subject to the Gravel, ought to use Aliments of easy Digestion, bathe frequently, and drink often; lest their Urine, becoming acrid, should corrode the Parts thro' which it passes. To Patients of this kind, too much Exercise is prejudicial. Those, also, who are subject to Defluxions on the Liver, or Spleen, ought to abstain from too violent Exercise, and the Use of cold Baths, and rather seek for a Cure in Abstinence from Meat and Drink, and in the Use of warm Baths."

These Words of *Erasistratus*, quoted by *Galen*, shew us, that, tho' he did not absolutely condemn Exercise, yet he only approv'd of it as a Remedy to be practis'd by those who were conscious of their Vessels being too full; and thought it entirely useless to such as enjoy'd a good State of Health. In this Particular his Sentiments were opposite to those of *Hippocrates*, as they also were with regard to Bleeding, Purging, and Abstinence.

Galen informs us, that *Erasistratus* attributed so much to *Succory*, in Diseases of the Viscera and lower Belly, and especially those of the Liver, that he took particular Pains to describe the Method of preparing it; which was, "To boil it in Water till it was tender; then to put it a second time into boiling Water, in order to destroy its Bitterness; and afterwards to take it out of the Water, and preserve it in a Vessel with Oil; and, lastly, when 'tis to be us'd, to add a little weak Vinegar to it." So minute and circumstantiate was *Erasistratus*, with regard to the Preparation of his favourite *Succory*, that, if we may believe *Galen*, he gave Orders to tie several of the Plants together, because that was the more commodious Method of boiling them; "As if, says *Galen*, Cooks and Kitchen-maids had not known how to boil a Bunch of *Succory*." What induc'd *Erasistratus* to this was, probably, that the Medicine of the Time in which he liv'd, consisted almost entirely in Regimen, to which this Physician added some topical Remedies, such as Fomentations, Cataplasms, and Unctions. He also approv'd of the most simple Medicines, and exclaim'd against the Royal Compositions and Antidotes, which his contemporary Physicians call'd the *Hands of the Gods*. He could not suffer, that Minerals, Plants, and animal Substances, Things taken from the Sea, and Things produc'd by the Earth, should be mixed together. It would, said he, be much better to use only Ptilan, Citruls, and Hydrelæum. By Ptilan and Citruls he understood the Diet, and by Hydrelæum, or Water and Oil, he meant Clysters, Ointments, and Fomentations. Thus he reduc'd Physic to a very simple and compendious Art.

Erasistratus was no less implacable an Enemy to superfluous and fine-spun Reasonings, than to too compound Medicines. He was afraid, lest the Errors he should fall into, in reasoning upon the Causes of Diseases, might influence his Practice, and deceive him in the Cure of Disorders. *Erasistratus* and *Ilerophilus*, says *Galen*, were but half Dogmatics; they would only treat with the Remedies suggested by Reason the Diseases of the organical or instrumental Parts.

It were to be wish'd we had still a Book, wrote by *Erasistratus*, intitled, *Of Causes*; if we had, we should, in all Probability, find something curious enough upon this Subject. This Book is quoted by *Dioscorides*, who informs us, that this Physician was not so much in the Empirical way of Thinking, as to believe it unnecessary to inquire into the Causes of other Disorders, besides those of the organical Parts, which *Galen* would insinuate. 'Tis true, he seems to agree with the Empiric Sect, which began almost in his own Time, that we cannot always discover the specific or particular Causes of several Disorders. But, said he, it does not follow, that it is so with the general Causes, which are apparent, sensible, and supply us with sure Indications. In order to illustrate this, he brought the Example of those who had taken Poison, or were bitten by some venomous Animal. This Poison, continu'd he, does not furnish us with a curative Indication, drawn from its specific Nature, which is unknown to us. But this does not hinder us from drawing a general Indication from the Effects produc'd by the Poison, upon which we may conduct ourselves in the Cure of this Disorder, by reasoning thus: The Cause of the Effects, we see, depends upon a venomous Matter, which, in a short time, destroys the Parts it touches, and causes Death, by quickly insinuating itself into all the Parts of the Body. We must, therefore, try to extract it as soon as possible, and prevent its penetrating farther and deeper. In order to answer this Intention, if any one has taken Poison, we must forthwith make him drink a great deal of Water, and afterwards cause him to vomit, that the Poison may be discharged from his Stomach. If, on the contrary, any one has been wounded by a venomous Animal, the Wound must forthwith be dilated, suck'd, and Cupping-glasses must be apply'd; the Part must also be scarify'd, cauteriz'd, and drawing Medicines must be apply'd to it; and, if there is an absolute Necessity for it, the whole Member must be cut off; and all this with an Intention to draw out the Matter of the Poison, and prevent its spreading.

It may, perhaps, be ask'd, whether *Erasistratus*, to the Medicines already mention'd, did not join Antidotes. It is probable he did; tho', at the same time, he did not approve of such as were very compound, and only used them as Remedies authoriz'd by Experience, without having, in that Particular, any Regard to the Cause of the Disease, or the Manner in which Antidotes acted; otherwise he must have reason'd a great deal, and had recourse to specific and particular Causes, a thing as contrary to his Principles as to those of the Empirics. Not that he entirely neglected these last-mention'd Causes, since he search'd for that of a Fever, the most difficult of all others to be discover'd. But, in all Probability, tho' this Physician thought it allowable to give a Loose to the Imagination in Researches of this kind, yet he did not look upon them as essential to the Practice of Physic, since he did not scruple to affirm, that we could only reason solidly upon sensible Causes, and that these alone could furnish us with certain and infallible curative Indications.

There are several Diseases on which *Erasistratus* wrote nothing, perhaps for want of an Opportunity of making sufficient Observations upon them. This appears so much the more probable, because, as *Galen* observes, it was reported of this Physician, that he neglected Practice, kept himself at home, and rarely saw any Patients.

He, nevertheless, apply'd himself to all the Parts of Medicine, and cultivated Surgery with as much Care as the Physicians who preceded him: He appears to have been a bold Surgeon, and a cruel Anatomist, if 'tis true, that he dissected Men alive. In a scirrhus Liver, or in Tumors of that Organ, *Calius Aurelianus* observes, that *Erasistratus* made an Incision thro' the Skin and Integuments, and, having open'd the Abdomen, he apply'd Medicines immediately to the Part affected; but, lest it should be thought, that this is not the real Meaning of the Passage, the Words in the Original run thus: *Erasistratus in jecoris præcens superpositas jecori cutes atque membranam, utitur medicaminibus quæ ipsum jecur late amplectantur; tum ventrem deducit, audacter partem patientem nudans.*

Tho' *Erasistratus* was thus bold in performing Operations on the Liver, yet he did not approve of the *Paracentesis*, or Tapping, in the Dropsy; because, said he, the Waters being evacuated, the Liver, which is inflam'd, and become hard like a Stone, is more press'd by the adjacent Parts, which the Waters kept at a Distance from it, so that by this means the Patient dies.

This Physician also declar'd against drawing Teeth which were not loose. He used to tell those who talk'd with him on this Operation, "That, in the Temple of *Apollo*, there was to be seen an Instrument of Lead for drawing Teeth; in order to insinuate, that we must not attempt the Extirpation of any but such as are loose, and call for no greater Force for their Extirpation, than what may be supposed in an Instrument of Lead."

Erasistratus wrote several Books, the Titles and Fragments of some of which are preserv'd in *Galen* and *Calius Aurelianus*. The former of these Authors informs us, that he wrote very accurately on the Dropsy. He also quotes the following Books; that in which *Erasistratus* treated of the Diseases of the Belly; that on the Preservation

of Health; that on *Things salutary*; that on *Habit*; that on *Fevers and Wounds*; that on *Divisions*, in which he related the several Observations he had made upon Diseases; that concerning *Vomiting*, and *Spitting of Blood*. *Galen* also quotes another Book of his, concerning the *Evacuation of Blood*, or *Venefection*. But this seems to be inconsistent with what *Galen* had said before, when he tells us, that *Erasistratus* did not write upon *Venefection*. It is probable there may be some Error in this Passage of *Galen*.

Erasistratus also wrote concerning the Palsy and the Gout. In the former of these Works he made mention of a Palsy of the Peritoneum, succeeded by a Retention of Urine: Because, said he, in this Case the Peritoneum does not press the Bladder, in order to discharge its Contents. He also spoke of another Species of Palsy, which he call'd *Strange*, or *Extraordinary*; because, by it, the Patient was suddenly constrain'd to stand still, without being able to walk, but, soon after, walk'd easily and freely. We know nothing of the Contents of his Book on the Gout, except that, in that Disorder, he condemn'd Purgatives, and promised King *Ptolemy* a Cataplasm for the Gout, of which he gave no Description. He also wrote against the Physicians of *Cos*, among whom was *Hippocrates*, whom he contradicted for the most part. He also wrote several Books of Anatomy, when he was pretty far advanc'd in Years.

Petrus Castellanus, in his Lives of the Physicians, says of *Erasistratus*, that when he was very old, and had suffer'd long under an incurable Ulcer of one of his Feet, he put an End to his Life, by swallowing the Juice of Hemlock.

This History of the Practice of *Erasistratus* and his Disciples will furnish us with Matter for a Remark of some Importance in Physic, and which a Practitioner should never forget, if he intends to make a Figure in his Profession, and satisfy his own Conscience, by a religious Discharge of his Duty to those who commit their Healths and Lives to his Care. It is, that the Instant Mankind began to dignify Imagination with the specious Title of Reason, and to prefer the Authority of the uncertain Dictates thereof, to that of Facts establish'd by the Experience of Ages, an Attempt was made to deprive Medicine of the most certain and effectual Means of Relief, which had at that time been discover'd, or even that at this Day we are acquainted with, I mean Bleeding and Purgings. But Physic is not the only Science which too justly complains of the Arrogance of false, and Deviation from right, Reason; for there is nothing serious or sacred, which has not been attack'd in the same manner; nothing certain, either human or divine, which has not been disputed; and nothing valuable and useful, which has not sustain'd some Injury by the Insolence of human Reason, which ten thousand Errors demonstrate to be not infallible.

Herophilus is generally thought to have been contemporary with *Erasistratus*, though somewhat his Senior. We have already given some Account of his Anatomy, under the Article ANATOMY. But this was not the only Branch of Medicine to which he apply'd himself; for he understood Surgery, cultivated Botany, and held Herbs in so great Esteem, that, according to *Pliny*, in the second Chapter of his twenty-fifth Book, he asserted, that those we tread under our Feet, were possess'd of very valuable Qualities.

Herophilus is said to have been the first Physician of the Dogmatic Sect, who made so great an Use of Medicines, both of simple and compound, that neither he nor his Disciples would undertake the Cure of any Disorder without them. *Celsus*, who makes this Observation, supposes, that preceding Physicians usually practis'd without them. *Herophilus* used to say, that Medicines were either nothing at all, or the Hands of the Gods, according as they were used and employed.

This Physician is also said to have been the first who treated with Accuracy the Doctrine of the Pulses, which before that Time had been much neglected. *Pliny*, indeed, asserts, that he carried Matters too far with respect to that Subject. According to *Herophilus*, says that Author, "it would be necessary to be both Musician and Geometrician, in order to know perfectly the Doctrine of Pulses, that is, to understand their just Measure and Cadence, according to the different Ages and Diseases of Patients."

But this Observation of *Pliny* is founded upon a vulgar Error, which represented *Herophilus* in this injurious Light, because he was unquestionably the first who, in treating that Subject, had used the Word *pulsus*, or *Measure*, a Term used by Musicians, but which he apply'd to the Pulse, and which has been retained by the Physicians of all succeeding Ages. *Galen*, indeed, by whom we are informed, that *Herophilus* wrote copiously on the *Measure* of the Pulses, asserts, that he has involv'd himself in Difficulties, and advanc'd Absurdities, in handling the Subject; but his having been the first who made such an Attempt, will sufficiently apologize for his Blunders.

What *Pliny* adds, with respect to the Sect of *Herophilus* being deserted, because his great Subtilty was not relished by every one, is by no means probable, since *Herophilus* had a great Number of Followers long after his Death. Besides, 'tis not easy to reconcile this great Subtilty, which *Pliny* ascribes to *Herophilus*, with the Account *Galen* gives of him, when he calls him half Empiric in his Sentiments; or when in another Part of his Works he classes him, and his Followers, among the Empirics.

Galen farther informs us, that *Herophilus* wrote against the Prognostics of *Hippocrates*, a Work which of all others has had the fewest, and at the same time the least successful Attacks made upon it. As *Hippocrates* did not much depend on the Pulse, and the Signs furnished by it, this, perhaps, is the Reason why *Herophilus* attack'd him in this Particular.

Celsus Aurelianus, who gives us some Instances of the Practice of *Herophilus*, informs us, that this Physician wrote nothing concerning the Cure of several Diseases, even such as most usually occur, as the Pleurisy and the Quinsy, though he treated of the Nature of these Disorders; since, among other Things, he maintains, that "the Lungs are the Parts affected in a Pleurisy; and that a Peripneumony does not differ from a Pleurisy, except that in the former the entire Lungs are affected, whereas in the latter a Part of them only suffers." He made mention of a Disease which is pretty rare, and which he call'd a Palsy of the Heart; but all he says of it is, that certain sudden Deaths are to be ascribed to it. *Herophilus* followed the Sentiments of *Praxagoras* his Master, and those of *Hippocrates*, with respect to the Humours, Health, and Diseases. His Practice was also very near the same with theirs. He repos'd a particular Confidence in white Hellebore, and compared this Remedy to a valiant Captain, who boldly marches out of the Gates of a City to meet the Enemy, after having sufficiently animated those who were to follow him.

If we may credit *Celsus*, it was near the Time of *Erasistratus* and *Herophilus*, that Medicine, which till then had in all its Parts been practis'd by one Person, was divided into three Branches, which became the Occupations and Employments of three distinct Classes of Men.

These three Branches were the Dietetic, the Pharmaceutic, and the Chirurgical Medicine. The first employ'd a proper Regimen in the Cure of Diseases, the second Medicines, and the third the Operation of the Hands. If this Division was to be understood strictly, according to the Letter, we might infer from it, that those who used

Regimen

Regimen could not prescribe Medicines; nor those who exhibited Medicines, and operated with their Hands, employ Diet. But *Celsus*, in the Preface to his fifth Book, explains himself thus: "All the Parts of Medicine," says he, "are so connected with each other, that they cannot be separated; that which treats the Patients by Regimen, sometimes adds Medicines; and that which employs Medicines, has also need of a Regimen: So that each Part takes its Name from that about which it is principally employ'd."

This Division lays a kind of Foundation for our believing, that *Celsus* intended the three Professions to which Medicine is at present confined, those of Physicians, Apothecaries, and Surgeons. But Matters did not then stand precisely on the same Footing they now do. Those who practised the first Branch, which was the Dietetic, were indeed the same with our Physicians; but the others were not equivalent to our Apothecaries and Surgeons. As the Physicians had the Care of internal Disorders, whose Causes are generally most difficult to be found out, they have, in all Ages, been held in the greatest Esteem. What made the People pay them a superior Deference, was their affirming, that in order to exercise their Art skilfully, they were oblig'd to be Philosophers, and have an Acquaintance with almost every Object in Nature.

Those who exercised the third Branch differ'd from our Surgeons in this, that their Art did not comprehend so many things. They meddled with nothing but Surgery, strictly so call'd, that is, barely with manual Operations; and did not undertake the Cure of Patients, who could find Relief by any other Method. They were not even allowed, according to *Celsus*, to treat Wounds, much less Ulcers and Tumors, except in Cases where there was an absolute Necessity for making an Aperture or Incision.

Wounds, Ulcers, and Tumors, belong'd to the Province of those who exercis'd the pharmaceutic Part. These they treated by the Application of Medicines which stop Blood, which consolidate, which deterge, which incarn, which suppurate, and which break or evacuate Abscesses. Upon the Whole, this Class of Men undertook all Disorders, the Cure of which is to be brought about by the external Application of Medicines. But when they could not succeed, and when there was a Necessity of having recourse to Fire, and the Knife, they then deliver'd over their Patients to the Care of the Surgeons, so that they differ'd very widely from our Apothecaries.

Before this Division was made, those call'd Physicians discharg'd all the several Offices belonging to the three Professions; and there were only two Kinds of Physicians, the one called *ἀρχιτροποι*, who only gave their Advice to the Patients, and Directions to the inferior Class, who were call'd *θαρμιακοί*, who labour'd with their Hands under the Inspection of the former, whether in performing Operations, in the Composition, or Application, of Remedies. The same thing, according to *Aristotle*, holds good in all Arts. But it happen'd, that the last-mentioned Order of Men, who were the Servants of the former, and sometimes their Children, or Disciples, began to perform alone, what they formerly did under the Inspection of another, and each profess'd what he understood best, either in Surgery or Pharmacy; so that Medicine was divided in the manner above-mentioned. Those who practised Surgery, bore the same Name they at present do. In the first Chapter of the twenty-ninth Book of *Pliny*, we also find the Name *Vulnerarius*, or *Vulnerum Medicus*, the Physician of Wounds; but this Appellation seems rather to belong to those who exercised the pharmaceutic Part of Medicine, since Wounds belong'd to their Province, according to *Celsus*; tho' 'tis possible *Pliny* might have intended a Surgeon by that Name, since these two Professions have not been so accurately distinguish'd, as to prevent the one from being taken for the other.

Those who applied to the Pharmaceutic Part were called *Pharmaceutæ*; for the Word *Pharmacopæus* was taken in a bad Sense, and generally importet a Poisoner, who was also called *φάρμακος* and *φάρμακεύς*, from the Word *φάρμακον*, which signifies indiscriminately every Drug or Composition, whether good or bad, and every Medicine or Poison, whether simple or compound. The *Latins* have in like manner us'd the Word *Medicamentum* for Poison, and the Word *Medicamentarius* for a Poisoner; tho' this last Word signify'd also an Apothecary, as did the first a Medicine.

The Word *Pharmacopola* among the Antients signified another Species of Profession. This Name was given to all without Exception who sold Medicines, tho' they did not prepare them: But the Name was in a particular manner applied to those we call Mountebanks, who stroll from Place to Place in order to sell their Medicines: For this Reason they were also called *Circulatores*, *Circuitores*, and *Circumforanei*. They were also called *ἀγορταί*, from a *Greek* Word which signifies to assemble; because they gathered a Croud about them, and found Fools enough to believe what they said, as their Brethren of the Profession at this time do. They were also for the same Reason called *ἀγοράγοι*. They were also called *Sellularii Medici*, *ἐμπόρευται*. This is the Trade with which *Epicurus* upbraided *Aristotle*: This the Business followed by *Eudamus*: This the Profession of one *Chariton*, from whom *Galen* has taken some Descriptions of Medicines, and whom he calls *ὁ λαγωγός*. This, in short, was the Business of *Lucius Clodius* of *Ancona*, whom *Cicero* calls *Pharmacopola Circumforaneus*.

It cannot well be determined whether what they called the *Pharmacotribæ*, that is, Mixers or Compounders of Medicines, were the same with the *Pharmacutæ*, or if those were only so called who composed the Medicines, tho' they did not apply them. These last might possibly be the Servants of the Druggists, who by the *Latins* are called *Seplasiarii* and *Pigmentarii*, and by the *Greeks* *παντοπωλάι*, and *χρυσωταί*, because they sold all Kinds of Drugs. They were also styled *ροποπωλάι*, *μιγματοπωλάι*, and in the later Ages of *Greece* *πρωταγοί*, a Name formed from the *Latin*.

The Shops of these Dealers were called *Seplasia* in the Plural Number, and Neuter Gender, and their Profession *Seplasia* in the Singular Number, and Feminine Gender. They sold to Physicians, Painters, Dyers, and Perfumers, all the Materials for which they had Occasion. These Venders, as well as Composers, of Medicines, were ready to sell bad and ill-prepared Medicines, and there were formerly, as well as now, incredible and wicked Frauds in these Professions. This Circumstance induced *Pliny* to censure the Physicians of his own Time, for not applying themselves to the Knowledge of Drugs, and for taking simple, as well as the compound Medicines, which they us'd upon the Word of those who sold them, and neglecting to inspect them, and compound them, as the antient Physicians did.

The Physicians purchased Medicines not only from the Druggists, but also the most common Simples from the *Herborists*, whom the *Latins* called *Herbarii*, and the *Greeks* *ρίζοτροποι*, or Cutters of Roots, and *βοτανικοί*, or *βοτανικοί*, Gatherers of Herbs, and not *βοτανισαί*, this latter Word being appropriated to those who cleaned the Corn, or took the bad and superfluous Herbs out of it. The Herborists, to raise at once the Dignity and Profit of their Business, superstitiously affected to gather Simples at certain particular Seasons, with various Precautions, and ridiculous Ceremonies. They were also very ready to give the Physicians one Herb or Root for another, when they happened not to be very skilful in such Affairs.

The Herborists, and those who exercised the Pharmaceutic Art, had also proper Places for holding their Drugs, their Simples, and their Compositions. These Places the *Greeks* called *Απὸθήκαι*, a general Name signifying all sorts of Places in which any thing is kept or deposited.

The Shops of the Surgeons were by the *Greeks* called *ιατρεία*, from the Word *ιατρός*, a Physician; because all those who were concerned in any Branch of Medicine, were antiently called Physicians, and because the Physicians were also Surgeons. The Word *ιατρική*, *Plautus* renders by that of *Medicinæ*; and as in his Time Medicine was not divided in *Rome*, but the Physician, the Surgeon, the Apothecary, and the Druggist, were all one; that Name, in the Comic Poet, agrees to all the Shops in general, where any Branch of the Medicinal Art was practised, whether Medicines and Drugs were sold in them, or whether they were designed for dressing the Wounded. In like manner the Word *Medicus*, with that Poet, signifies a Vender of Drugs.

But to return to the Division of Medicine, we have explained it precisely in the Sense of *Celsus*, whether the State of Things was actually such in his Days, or whether he only formed such a Plan as he thought should have been pursued. The Face of Affairs, however, changed afterwards; some encroached on the Professions of others, or exercised more Branches of the Business than one, or the same Names remained, tho' the Employments were no longer the same. Some Ages after *Celsus*, those who were by the *Greeks* called *πικνευαλγοι*; and by the *Latins* *Pimentarii*, and *Pigmentarii*, and who, properly speaking, ought to be Druggists, also discharged the Office of an Apothecary. As a Proof of this, we may bring that Passage of *Olympiodorus*, an antient Commentator upon *Plato*: The Physician, says he, prescribes, and the *Pimentarius* prepares every thing necessary. We cannot precisely determine when this Change happened; but the Author now quoted lived about four hundred Years after *Celsus*.

The Division already mentioned did not, however, hinder several Physicians, both in the Time of *Celsus*, and afterwards, to adhere to the antient Customs; and tho' their Profession derived its Name from the Word *DIET*, yet they were not so rigidly attached to that alone, for the Relief of the Afflicted, but that they employed not only other Medicines, but had also Operators under them, who blooded, scarified, applied Cupping-glasses, exhibited Clysters, applied Cataplasms and Plaisters, anointed, fomented, bathed, and prepared Medicines.

After the Days of *Herophilus*, in or about whose Time this Division was made, several famous Physicians wrote upon Surgery, and Pharmacy in particular; which proves, that they professed a Knowledge of every Branch of Medicine, as they had formerly done: And, first, with regard to Medicines, tho' various Descriptions of them were found in the Writings of preceding Physicians, such as *Hippocrates* and *Diocles*, yet these Descriptions were scattered here-and-there in their practical Works; and Books, on the particular Subject of Medicines, were, in these Days, very rare, as *Galen* observes; so that it was properly at the Time of the Division of Medicine, that People began to write on this Subject in particular, or to compose Works of this Kind; and the Physicians were the Persons who employ'd themselves in carrying on the Design. *Herophilus* began to make more Use of Medicines than had formerly prevailed. He was succeeded by his Disciples, who, by reason of the great Regard they had for their Master, did not fail to write in particular upon this Subject. Among the Followers of *Herophilus* who distinguished themselves most in this Way, *Celsus* mentions *Zeno*, *Andreas*, and *Apollonius Mus*; and to these *Galen* adds *Mantias*.

The first grand Revolution which happened to Physic, after *Erasistratus* and *Herophilus*, was occasioned by the founding of the Empiric Sect. This happened about 287 Years before the Birth of *Christ*. *Serapion* of *Alexandria* was, according to *Celsus* in the Preface to his first Book, the first who asserted, that there was no Necessity for Reasoning in Medicine, and that we ought entirely to depend upon Experience; or, at least, as he was the first who espoused this Sentiment vigorously, and was followed in it by others, he was erected Chief of the Empiric Sect.

Others have ascribed the same thing to *Philinus*, of the Isle of *Cos*, a Disciple of *Herophilus*, who is supposed to have furnished *Philinus* with an Occasion of establishing this Sect. We are not told how this happened; but we may easily conjecture at it, since *Herophilus* was half an Empiric; because he imagined, that we ought not to reason in Medicine, except in Diseases which depend upon some Disorder of the instrumental or organical Parts. *Herophilus*'s having so strongly recommended Medicines, and his Disciples being of the same Sentiments in that Particular, are two Circumstances which amount to an additional Proof; for it is well known, that the sole Design and Intention of the Empirics was the Investigation of Medicines. It is, no doubt, for this Reason, that *Herophilus*, and some of his Followers, such as *Zeuxis*, *Heraclides* the *Erytbrean*, and *Bacchius*, are, by *Galen*, class'd among the Empirics; tho' that Author well enough knew the Difference between the Sect of *Herophilus*, and that of *Philinus* or *Serapion*.

Others are of Opinion, that *Acrion* of *Agrigentum* was the Founder of this Sect; and the Empirics themselves asserted, that he was so, in order to have the Advantage of Antiquity over the Dogmatic Physicians, who began only in the Days of *Hippocrates*. In order to clear up this Difficulty, we must observe, that there were two Kinds of Empirics among the antient Physicians. Those who lived from the Days of *Æsculapius*, or whoever first reduced Medicine to an Art, till the Time in which Reasoning and Philosophy were introduced into Medicine, were the first Empirics; but there is this Difference betwixt them and those of the Sect of *Serapion* and *Philinus*, that the former were Empirics without receiving that Name, so that they cannot properly be look'd upon as Sectaries, since they were the first of all Physicians; whereas the later Empirics made Choice of that Name for themselves, and affected to make a distinct Sect from the Dogmatics. Lastly, the Empiricism of the former was purely natural; whereas that of the latter was the Effect of their Meditation and Reasoning, which they well knew how to employ for the Support of their Party, tho' they declared themselves openly against such as reasoned in medicinal Affairs; conducting on this Occasion, somewhat like many of the Moderns, who notwithstanding their Contempt of Theory, are nevertheless attached to one of their own.

Philinus and *Serapion* must have lived pretty near each other; the former flourished in the Days of *Herophilus*, whose Disciple he was. *Athenæus* informs us, that he wrote concerning Plants, and commented upon *Hippocrates*; but we know not what particular Measures he took in order to establish his Sect.

As for *Serapion*, he probably practised Physic at *Alexandria*, the Place of his Birth. The Time in which he lived is not precisely known; but we may suppose he lived near the Days of *Philinus*, or was contemporary with the Disciples of *Herophilus*; because he came after *Hippocrates*, against whom he reasoned; and because he preceded the famous Empiric *Heraclides* of *Tarentum*. We are informed by *Galen*, that *Serapion* used *Hippocrates* very ill in his Writings, in which an intolerable Excess of Pride, Self-praise, and Contempt for all the valuable Physicians who went before him, were discovered. He wrote a Book concerning such Medicine as may be easily prepared; and we have some Sketches of his Practice in *Calius Aurelianus*, which convince

vince us, that he retained the Medicines of *Hippocrates*, and the other Physicians who lived before him, tho' he rejected their Reasonings. We know not what Arguments he advanced for the Support of his Sentiments, since his Works are lost, as well as those of all the other Empirics; and we should know nothing relating to any of them, if their Adversaries had not quoted them in order to confute them.

Cælius Aurelianus, when treating of the Cure of a *Cholera*, makes mention of certain Pills used by *Serapion* and *Heraclides* of *Tarentum*, compounded of the Seeds of Henbane, Anise, and Opium. In each Dose of these there was to be one Grain of Opium, and four Grains of the Seeds of Henbane. And indeed among all the antient Sects, we find none more attach'd to the internal Use of Opium than the Empirics. *Serapion*, if we may believe *Cælius Aurelianus*, in the Cure of the Iliac Passion, used a Pill compounded of Filings of Lead, the Grana Cnidia, Salt, Elaterium, Resin, Castor, and Diagrydium. In this Composition there are two Ingredients worth our Attention; the Filings of Lead perhaps exhibited with a View of facilitating their Passage by their Weight, and the Castor with an Admixture of Purgatives; which last Ingredient is still the more worthy of our Attention, because *Erasistratus* used Pills with Castor for the Intention of purging. Besides, Castor was frequently used by the Empirics, as we learn from some other of their Compositions specified by *Cælius Aurelianus*. I don't however apprehend, that *Castor* was intended as a Cathartic, but as a Corrector of the brisker Purgatives, in which Intention it is of considerable Efficacy.

When *Cælius Aurelianus* proposes the Cure of an Epilepsy, he gives us, from *Serapion*, a long Catalogue of antiepileptic Medicines, such as Castor, the crusty Warts on the fore Legs of Horses, the Brain and Gall of a Camel, the Coagulum of the Sea-calf, a Medicine prepared of the Dung of the Land-crocodile, the Heart and Loins of a Hare, the Blood of a Sea-tortoise, or the Testicles of a Boar, a Ram, or a Cock. But before the Use of these Medicines he prescribed Venesection, and sometimes Emetics, such as white Hellebore, and sometimes Purgatives, such as Scammony and black Hellebore.

Celsus gives us an Account of a Medicine recommended by *Serapion* for the Cure of impetiginous Disorders. This Preparation consisted of Nitre two Parts, and Sulphur four Parts, made up with a large Quantity of Rosin; but by *Nitre*, what we now call by this Name is not meant. *Actius* commends his *Emplastrum Melinum*, tho' he gives us no Description of it. In *Nicolaus Myrepsus* we read of a certain Preparation of his, which he calls *Antidotus Choragus*, so called, because it invigorated those who were impotent. The principal Ingredients in this Antidote were Satyrion and the Scink. From these Specimens we may form a Judgment not only of the *Materia Medica*, but also of the Practice of *Serapion*. But whether *Philinus* or *Serapion* was the Founder of the Empiric Sect, it must be both curious and instructive to inquire into the Principles by which the Physicians belonging to it conducted themselves.

They admitted only one Method of acquiring a genuine Skill in the Medicinal Art, which was by Experience, called by the *Greeks* ἐμπειρία. From this celebrated Word they derived their Name, and would not be denominated either from the Founder, or from any Champion of their Sect.

They defined Experience a Knowledge acquir'd by the Evidence of Sense. This Evidence, they said, was either fortuitous, as when, without any Design or Intention of a rational Agent, an Accident of such a Nature happens to a Patient as frees him from his Disease; when, for Instance, any one labouring under a Head-ach, casually cuts himself in such a manner as to open the frontal Vein, and get free of his Disorder by the Effusion of the Blood; or if a Hæmorrhage from the Nostrils should happen to a feverish Patient, and his Indisposition be remov'd by that Accident. Or this Evidence was acquir'd by *Design*, as when one bit in a Field, or on a Mountain, by a Serpent, applies to the Wound any Herb which occurs to him, and observes a salutary Effect from it; or when any one in parallel Cases frequently exhibits what has often prov'd beneficial, and observes the Events. This they called Imitation.

For acquiring a practical Habit, they recommended what they called τήρησις, or one's own Observation, and the reading of Histories and Cases faithfully related by others, and which distinctly enumerate the several Accidents of Diseases, and give an Account of the Effects produced by particular Remedies. Hence they thought we might be enabled justly to know a Disease by its Similitude to another; and, when new Diseases occur'd, to conclude what was proper to be done from the Symptoms they had in common with others before known. This they called *Epilogismus*, or ἀπὸ τοῦ ὁμοίου μετὰ βεβαιότητος. Which the *Latins* translate *Transitus ad Simile*, or rather, according to *Le Clerc*, *Substitutio similis*.

Thus the Evidence of Sense, Histories of Cases, and the *Epilogismus*, or arguing from Analogy, or, as others express it, Sense, Memory, and Epilogism, were by them esteem'd the three principal Foundations of Medicine, or, in the Words of *Glaucias*, ἡ τριπλοῦς τῆς ἰατρικῆς, the threefold Foundation of Physic.

They asserted, that Observation ought to be principally employ'd in two Ways; first in discovering what things are salutary, and what are of an indifferent Nature; and secondly, what particular Disease is form'd or produced by a certain given Concurrence of Symptoms; for they did not call every Symptom a Disease, but only such a Combination of them, as from long Experience they found to accompany each other, and produc'd such Disorders as began, increas'd, rag'd, declin'd, and terminated in the same manner. Such a Complication of Symptoms they called a Disease, and gave it a particular Name.

Some of the Empirics, it must be own'd, differ'd from the rest, especially with regard to the Division of Medicine; but these Differences, as little interfering with the fundamental Principles of the Sect, were overlook'd, or at least not much regarded.

As my Design in this Preface is to specify the principal Revolutions Physic has been subjected to by the Introduction of new Theories, and the Influences these have had upon Practice, it will be necessary in this Place to give the Arguments of the Dogmatic Physicians, in Defence of Ratiocination in Medicine, and those of their Adversaries the Empirics, in Opposition to it.

The Physicians of the Dogmatic Sect maintain'd, that there was a Necessity for knowing the latent, as well as the evident, Causes of Disorders, and that the Physician ought to understand the natural Actions and Functions of the human Body, which necessarily presupposes a Knowledge of the internal Parts. By secret or latent Causes they meant such as related to the Elements, or Principles of which our Bodies are composed, and which are the Origins of a good or bad State of Health. They asserted, that it was impossible to know how to cure a Disease without knowing the Cause whence it proceeded; because, without Doubt, if Diseases in general proceeded from an Excess or Defect, as some Philosophers believ'd, of the four Elements, they ought to be treated in a quite different manner from what they should be, if they proceeded from the Humours, as *Herophilus* believed; and in another manner, if they drew their Origins from the Air, as *Hippocrates* imagin'd; and still in another, and a different manner, if the Blood passing from the Veins destin'd to contain it, into those

which ought to contain only Spirits, excites Inflammation; and if this Inflammation produces the preternatural Motion observable in Fevers, as *Erasistratus* believ'd. And lastly, in a still different manner, if they proceeded from small Bodies stopping in the minute Passages, and blocking up the Conveyances which Nature intended to be pervious and open, as others asserted. This being taken for granted, 'tis certain that the Physician who is least mistaken with respect to the original Causes of Diseases, must succeed best in their Cure.

The Dogmatics did not deny the Necessity of Observations; but they asserted, that these Observations could not be judiciously nor accurately made without the Help and Assistance of Reasoning. They added, that those who first began to practise Medicine, did not, in all Probability, prescribe what first struck their Imaginations; but that they thought over and over again upon the Matter, and that the Effects produced by the things prescrib'd afterwards enabled them to know whether they had reasoned well or ill. They said it was of no Importance to advance, that the Virtues of Medicines were first known by Experience, provided it was allowed, that the Experiments, which confirm'd their Use, were the Results of Reasoning in those who made them.

They said we often observ'd new Species of Diseases, against which Use and Experience had as yet taught nothing; and that it was consequently necessary to consider whence they proceeded, and how they began, otherwise no one could assign a Reason for his prescribing one thing rather than another for their Cure. These, according to the Dogmatics, are the Reasons which render a Research of the hidden and latent Causes of Diseases necessary. As for the evident Causes, which were of such a Nature as to be observ'd by every body, and where all that was necessary was only to know whether the Disease proceeded from Heat or Cold, from Hunger or Repletion, and the like, they confessed there was a Necessity for knowing these, and making suitable Reflections on them; but then they maintain'd, that we were not to content ourselves with discovering these alone.

With respect to the natural Actions, they said it was necessary to know why and how we receive the Air into our Lungs, and why it is discharg'd from them, after it has enter'd them; why we take Aliments, and how they are prepar'd, and afterwards distributed to all the Parts of the Body; why the Arteries rise and fall, and what are the Causes of Watching and Sleep: And they maintain'd, that we could not cure Disorders incident to these Functions, without knowing all these things. But to illustrate this Matter by an Example drawn from the Preparation of the Aliments: They are, said these Physicians, either triturated in the Stomach, as *Erasistratus* believ'd; or they putrify there, according to the Opinion of *Plistonius* the Disciple of *Praxagoras*; or they are there concocted by means of a particular Heat, according to *Hippocrates*; or, according to *Aesclepiades*, all these Opinions are equally false, and nothing is concocted, but the Aliments are distributed thro' the Whole of the Body crude as they were taken. With respect to these various Sentiments, it must be allow'd, that one Species of Aliment is proper for the Sick, if the Doctrine of *Hippocrates* is true; and another, if that of *Erasistratus*, or any of the rest, is better founded. If it is necessary, that the Aliments should be triturated, such as are most easily reduc'd to a proper State ought to be chosen; if they putrify, those which most easily become putrid are most proper; if they are concocted by a particular Heat, such as are most proper for exciting that Heat are to be prescrib'd; but if nothing is concocted or chang'd, we have no Occasion for so much Trouble, or rather we ought to prescribe such Aliments as are least subject to have their Natures chang'd.

They also maintain'd, That as the most considerable Pains and Disorders proceeded from the internal Parts, it was impossible to cure these without a Knowledge of the Parts affected; that it was consequently necessary to open the Bodies of the Dead, with a View to examine their Viscera; and that it would be still more advantageous to imitate the Practice of *Herophilus* and *Erasistratus*, who dissected condemn'd Criminals, and such as the Kings made them Presents of, before they expir'd; a favourable Circumstance, which procured to those Physicians the Advantages of seeing openly what Nature in other Cases kept concealed, and of considering the Situation, the Colour, the Figure, the Bulk, the Order, the Hardness, the Softness, the Roughness, the Smoothness, the Eminences, and Cavities of every Part, in order to distinguish that which receives, from that which is receiv'd. They added, That when any one labour'd under an internal Pain, it was impossible to know what Part was affected, without being acquainted with the precise Situation of all the Viscera, and internal Parts; and that a Person unacquainted with a disorder'd Part would not be likely to cure it; that when the Viscera of a wounded Person appear thro' the Wound, he who is ignorant of the natural Colour the sound Part ought to have, cannot distinguish what is in a good State from that which is corrupted or alter'd; and consequently cannot apply a proper Cure; that, on the contrary, safe and proper Remedies may be applied by one who knows the natural State of the injur'd Parts; and that it is not the least Degree of Cruelty to make a few profligate Wretches suffer, in order to find out proper Means of Relief for an infinite Number of innocent Persons.

To this the Empirics reply'd, That they pretended to know only the evident Causes of Diseases, imagining that all the Disputes with respect to the obscure and latent Causes, or the natural Actions, were entirely superfluous, because Nature herself was incomprehensible. This Truth, said they, could not be denied them by any one who reflected on the Diversity of Opinions entertain'd by those who had wrote on these Subjects, since neither Philosophers nor Physicians had ever come to an Agreement about them. Why, said they, should we believe *Hippocrates*, rather than *Herophilus*, or *Herophilus* rather than *Aesclepiades*? If we were to put up with Reasonings, perhaps those of both Parties may appear equally probable and conclusive. If we look for a Cure in these Reasonings we find it in none of them, and consequently cannot know to which Party we ought most reasonably to adhere: That if Reasoning were only requisite to constitute a Physician, the Philosophers would be the most skillful Physicians of any; but that unfortunately they were entirely ignorant of the Art of Healing, notwithstanding their happy Turn for Reasoning: That the Means of preserving and restoring Health were different according to the Difference of Climates: That one Set of Remedies were necessary at *Rome*, another in *Egypt*, and a third in *Gaul*; a Circumstance which would not happen, if the Causes of Diseases were universally the same. They said, That the Causes of Disorders were often manifest as in Wounds, but that it did not thence follow, that the Remedies to be applied to them are equally easy to be found out and discover'd. If then the Knowledge of evident Causes cannot suggest the Remedies necessary to be used, it is by no means probable, that the latent, obscure, and dubious Causes can furnish us with more Insight into the Natures of Disorders; and if these last-mention'd Causes are uncertain, and almost incomprehensible, is it not more reasonable to expect Assistance from things which are certain, and vouched by Experience on several Occasions? This they asserted to be the Practice with respect to all other Arts, and affirm'd, that a Labourer, or a Philosopher, did not become skillful in their respective Professions by Dispute and Argumentation, but by Use and Experience. They said we might certainly conclude, that these intricate Questions were not essential to Medicine, since Physicians of different Sentiments recover'd their Patients; which would not happen, if, instead

instead of conducting themselves by the latent Causes of Disorders, they did not adhere to the Experiments which have formerly succeeded with them. They affirmed, that Medicine did not draw its Origin from Questions of this Nature, but from Experiments, and Observations of the kind now mentioned.

Some Patients, continued they, who were at first without Physicians, took large Quantities of Aliments in the first Days of their Disorders, because their Appetite was good; others eat nothing at all, because they loathed Food of every kind. Upon this it was observed, that those who had taken nothing, found themselves in the best and most favourable Condition. Some took Aliments in the immediate Paroxysm of a Fever, some a little before, and others after the Fever had left them; and it was observed, that those who waited till the End of the Paroxysm, were least injured. Accidents of this Nature happening pretty often, some People were careful to make Observations of what had succeeded best, and afterwards advised Patients labouring under the like Disorders, to follow the same Measures: That thus Medicine had derived its Origin from Experiments, made sometimes to the Detriment, and sometimes to the Advantage, of the Afflicted; and that Physicians had first of all learned, at the Expence of their Patients, to distinguish between what was prejudicial, and what was salutary: That the Medicines proper for each Disorder being thus gradually discovered by this Method, Men began to reason, and inquire why these Remedies acted in such or such Manners; and that thus Medicine was not invented after Reasoning, but Reasoning after Medicine. The Physicians of the Empiric Sect asked those of the Dogmatic, Whether Reasonings taught them the same Things Experience did, or the contrary; and asserted, that, if Reasonings taught them the same Things, they were superfluous; and that if any thing contrary to Experience was deduced from them, they were prejudicial. They owned, that, at first, there was a Necessity for making Experiments with a great deal of Care and Application; but that, in their Days, there was a sufficient Stock made to their Hands, so that it would be criminal in them to make new ones at the Expence of their afflicted Patients; and that they had nothing to do, but to enjoy the Advantages arising from the Labours of the Antients.

They asserted, that we ought not to imagine, that new Species of Disorders, or such as require new Medicines, happen; but that if an unknown Species of Disorder should occur, there was, at first, no Necessity for having recourse to an obscure Cause; and that, in such a Case, the skilful Physician ought to consider some well-known Disorder, with which the new one has the most Analogy, and make Trial of the Remedies which have succeeded in the Cure of the former.

They also said, they were by no means of Opinion, that a Physician ought not to reason, or that an Animal without rational Powers could practise Medicine, tho' they were convinc'd, that the Conjectures, drawn from latent and occult Causes, were of no Importance; since the Business of a Physician was not to discover what caus'd the Disease, but what cur'd it; and that the Physician need not trouble himself to find out the Manner in which the Concoction or Digestion of the Aliments is perform'd, provided he knows those Aliments which are most easily concocted and digested. They also said it was to no Purpose to inquire how and why we respir'd; but that the Physician ought rather to know Remedies for a Cough, a Shortness of Breath, and the other Accidents which disturb Respiration: That there was no Reason to trouble ourselves about finding out why the Arteries beat; but that our principal Business was rather to know what the particular Changes and Alterations of their Pulsations denoted, which could only be learned from Experience: That, with respect to all the other Questions proposed by the Dogmatics, either Side of the Question might be disputed upon with equal Appearance of Truth; and that generally the brightest Genius, or the most voluble Tongue, carry'd the Victory. 'Tis not, said they, fine-spun Arguments, or elegant Discourses, but proper and well-chosen Remedies, which cure Disorders; and, if a dumb Person should have good Medicines, the true Use of which he has learn'd from Experience, he is, without Doubt, a more skilful Physician, than the Man who has the Use of his Tongue, but knows not how to apply Remedies.

Lastly, the Empirics affirm'd, that the Dogmatics were attach'd not only to things superfluous and useless, but also such as evidently shock'd the most obvious Principles of common Humanity. What valuable Purpose, said they, does it serve to dissect People alive, and make Medicine, which ought to be subservient to the Safety of Mankind, the cruel Instrument of its Destruction; since, by Methods so barbarous, we cannot discover what we wish; and since, on the other hand, we may acquire as much Knowledge as is necessary, without committing any Crime? Neither the Colour, the Softness, the Hardness, nor most other Properties of that kind, are the same in a Body we have laid open, as they are in a sound living Body; for, since Fear, Grief, Abstinence, too much Aliment, Weariness, and a thousand other slight Inconveniences, are able to produce a Change, with respect to these Particulars, in the external Parts of living Bodies, how is it possible, that the internal Parts, which are extremely tender, and which may be alter'd by the Air, or the Light alone, to which they were never before expos'd, should not, in like manner, be chang'd by Dissection, or by cruel Wounds; and that a still greater Change should not be produc'd by Death? What can be more ridiculous, than to imagine, that things must be still the same in a Person either dying, or already dead, as they were when he was alive? We may, indeed, lay open the lower Belly, and run over the Viscera contain'd in it, before Respiration is stop'd; but, as soon as the Diaphragm is broken, the Patient forthwith expires. This, however, is the only Means by which the Heart, and the Parts surrounding it, can be expos'd to the Eyes of the cruel and butchering Physician, not in the State in which they were during Life, but such as they are after Death. And thus all that such a Physician, or rather Butcher, has done, is to have kill'd a Man in the most barbarous manner imaginable, without being able, after all his Labour, to discover by that means how the Parts he saw were situated before the Patient expir'd. The Empirics added, That if there was any internal Part which could be seen whilst the Man was alive, Chance furnish'd the Physician with Opportunities of observing it: When, for Instance, a Gladiator in the Circus, a Soldier in the Field of Battle, or a Traveller attacked by Robbers, are severely wounded. They said this was a lawful Method of instructing ourselves with respect to the Situation and Figure of the Parts, and all the other Things that can be known concerning this Matter, by Acts of Compassion and Humanity, and not by detestable Cruelty; since the End of Inquiries of this Nature is not to inflict Death, but to preserve Life. They also maintain'd, That it was not necessary to dissect Carcasses; since, if it was not a cruel, it was at least a filthy Practice; and asserted, that things being much changed in the Body by Death, it was much better to abstain from dissecting the Dead, and rather content ourselves with the Knowledge which might be acquired by attending the Living.

Celsus, who relates these Arguments of the Empirics and Dogmatics, gives his own Sentiments with respect to both, in the following manner: " Since, says he, these important Topics have often been made the Subjects of large Volumes, and laid a Foundation for the keenest Disputes, and warmest Altercations among Physicians, I shall strip myself both of a fond Attachment, and a groundless Aversion, to either Party, endeavour to keep within the Bounds of a due Medium, and thus declare my Sentiments, with that Candour and Impartiality which become a sincere and unbiass'd Inquirer after Truth.

" What

“ What the Causes of Health then are, what excites Diseases, the particular Manner in which the Spirits
 “ are distributed, or the Aliments digested, are things of a Nature so abstruse and remote from our Senses,
 “ that the most learned Physicians can only form Conjectures about them, without being able thoroughly to com-
 “ prehend them. Now Conjecture, or Opinion, with respect to a Disease not perfectly known, can never discover
 “ a certain and infallible Remedy for its Cure ; and it is an unquestionable Truth, that nothing more directly con-
 “ tributes to a safe and prudent Method of Cure than *Experience*. But as, in other Arts, there are many Things,
 “ properly not belonging to the Arts themselves, which have, nevertheless, a Tendency to excite the Curiosity,
 “ and form the Genius, of the Artist ; just so it is with respect to Medicine ; for tho’ a Contemplation of
 “ the Natures of Things does not form the Physician, yet it renders him better qualify’d for the Practice of Physic,
 “ than he would have otherwise been. ’Tis highly probable, that *Hippocrates*, *Erasistratus*, and others, not ser-
 “ vilely confining themselves to the Cure of Ulcers and Fevers, but launching out, in some measure, into the
 “ Natures of Things, did not, by that means, become Physicians ; tho’, ’tis certain, they had not been so great
 “ in their Way, nor such Ornaments to their Profession, if they had confin’d themselves to Experience only.
 “ The Deductions of Reason are highly serviceable and necessary to Medicine, if not always, yet at least very often,
 “ in discovering latent Causes, and accounting for the natural Actions : For Medicine is a conjectural Art, and
 “ sometimes neither the happiest Conjectures, nor the Skill acquir’d by Experience, are sufficient to answer its
 “ main Intention. Sometimes Fevers appear in different Shapes, the Digestion of the Aliments varies, and the
 “ Degrees of Sleep and Watching alter. New Diseases also happen sometimes, tho’ rarely ; and to affirm that
 “ they do not, is a manifest Falshood ; since, in our own Days, a certain Lady expir’d in a few Hours, in con-
 “ sequence of the Flesh becoming dry, and falling from the Pudenda ; so that the most skilful Physicians neither
 “ discovered the Nature of her Disorder, nor a Remedy capable of curing it. They were, probably, deterred
 “ from trying Experiments upon this Patient, who was a Lady of Distinction, lest, by following their own Con-
 “ jectures, they should have been thought to kill her, unless she recover’d. But ’tis probable, that if such a
 “ criminal Modesty had been laid aside, something might have been thought upon for her Relief, and, perhaps,
 “ the very Thing thought upon might, upon Trial, have answered the End. In Cases of this Nature, Simili-
 “ tude, or apparent Analogy, is not always to be our Standard ; and when it is, yet it is still reasonable, that,
 “ amidst so many similar kinds of Diseases and Remedies, we should think and consider what particular Medicines
 “ are principally to be used. When such a Case, therefore, happens, the Physician must find such a Remedy as,
 “ tho’ perhaps not always crowned with Success, yet, for the most part, answers the Intention. He must also
 “ seek for new Information, not from latent Circumstances, which are dubious and uncertain, but from such
 “ things as are capable of being fairly investigated, that is, evident Causes ; for it is of Importance to know whether
 “ the Disease proceeded from Fatigue, from Thirst, from Cold, from Heat, from Watching, from Hunger,
 “ from an Excess of Wine or Aliments, or an immoderate Indulgence of Venery. The Physician must also
 “ know the particular Constitution of the Patient, whether it is moist or dry, whether his Nerves are strong or
 “ weak, whether he is frequently or rarely indisposed ; and, when he is actually so, whether his Disorder be
 “ severe or slight, long or short. He must also consider the particular Course of Life he has led ; whether of the
 “ laborious, or of the easy and indolent Kind ; and whether he has lived luxuriously, or frugally and sparingly ;
 “ for from these Circumstances, and others of a like Nature, a new Method of Cure is often happily indicated ;
 “ tho’, at the same time, these are not to be considered as admitting of no Dispute ; for *Erasistratus* maintained,
 “ that Disorders did not arise from them, since many have been known to have endured these, without being sub-
 “ jected to Fevers thereby.”

The Dogmatics and Empirics seem to have conducted, on this Occasion, much like all other Disputants ; that is, they have argued, not with a View of coming at Truth, but for Victory ; otherwise the Dispute would be easily determined, as lying in a very narrow Compass. If, as the Dogmatics asserted, Remedies could not be adapted properly to the Cure of Diseases, without knowing their latent or remote Causes, miserable would be the State of Physic, as well as the Condition of the Sick ; the former of which would make a very inconsiderable Figure, and the latter must submit generally to sink under a great many Disorders, which Nature, unassisted by Art, is not sufficient to remove.

On the other hand, as all things have some mechanical Cause, it would be of infinite Service to Medicine, if these could be demonstrated and made plain beyond all Possibility of Contradiction ; for this would be a sure Guide to the Physician in the Application of Remedies already known ; but whatever in Theory is doubtful, or admits of the least Dispute, is not to be depended upon in Practice, as being capable of leading into Errors. The Abuse, therefore, and not the Use of Ratiocination, is to be condemned. Hypothesis cannot easily mislead Men who have Judgment sufficient to enable them to distinguish it from Demonstration ; but Theory, in the Hands of People destitute of Abilities, is not less dangerous than an Instrument of Death in the Hands of a Madman.

As to the Uses of Anatomy in Medicine, on which the Physicians of the Empiric Sect seem to lay no great Stress, I have, I think, given some irrefragable Instances in its Favour, under the Article *ANATOMY*. But I must confess, that I am afraid it has been very greatly misapply’d, and, instead of being made the solid Foundation of a rational Physiology, has sometimes been prostituted to the distorted Imaginations of trilling Dissectors, whose Dexterity at dividing a Muscle, tracing the Course of a Nerve, or a Blood-vessel, or, perhaps, discovering the Structure of some particular Organ, has encouraged them to erect Hypotheses not less extravagant than any contained in the *Wagadastirum* of *Malabar* ; and, which is worse, upon these to establish Modes of Practice, not less absurd and destructive, than any we meet with Accounts of, even amongst the most barbarous Nations. And this is what Dr. *Freind*, with too much Justice, insinuates, in a Passage I have somewhere quoted.

Having thus given some Account of the Founders of the Empiric Sect, and of the general Principles by which they conducted themselves, we shall take some Notice of the most celebrated Authors who espoused their Tenets, and trod in their Steps. *Celsus*, in the Preface to his first Book, informs us, that *Apollonius* succeeded *Serapion* ; but, among so many of that Name, ’tis no easy Task to discover precisely who the *Apollonius* there mention’d was. *Galen* mentions two by this Name of *Antioch*, the Father and the Son, as Champions of the Empiric Sect ; and *Celsus* himself, in his Catalogue of celebrated Surgeons, speaks also of two. *Celsus Aurelianus* speaks of one *Apollonius Glaucus*, who wrote concerning internal Diseases ; but there were so many of the Name, and the History and Chronology relating to them are involved in so much Obscurity and Uncertainty, that it would be both tedious and useless to attempt any farther Account of them.

After *Apollonius*, *Celsus* places *Glaucus* ; some time after whom flourished *Heraclides Tarentinus*. The former of these is frequently mentioned by *Galen*, tho’ nothing memorable is said of him, except that he commented upon *Hippocrates*, and particularly upon the sixth Book of his Epidemics ; he also praises some of his Medicinal Compositions. *Pliny*, in the twenty-third Chapter of the twenty-second Book of his Natural History, quotes him,

him, as maintaining that the *Boletus* is a good Stomachic, and that the *Dracontium Sylvestre* was the same with *Arum*; from which Circumstance we may collect, that he also wrote concerning Plants.

But the most celebrated and learned of all the Empirics was *Heraclides Tarentinus*, who, according to *Galen*, was the Scholar of *Mantias*, the Disciple of *Herophilus*; and who imitated his Master not only in rendering the *Materia Medica* more perfect, but also in cultivating the dietetic Part of Medicine. These two Authors *Galen* asserts to be the best who had wrote upon that Subject, since they had advanced nothing but what was founded on Experience.

Heraclides Tarentinus, if we may believe *Galen*, wrote concerning simple Medicines; and *Epiphanus* gives him a Place among the Authors who treated on Herbs. He is also said to have wrote upon Pulses, and to have dared to contradict *Herophilus* in that Particular. He also treated of Surgery, in a Work expressly on that Subject, the fourth Book of which *Galen* quotes, and bestows singular Encomiums on the Author. As the Passage of this Work, quoted by *Galen*, relates to an important Controversy, much agitated both in former Ages and at present, I shall give the whole Passage: "That the Thigh-bone sometimes stays in, when reduced, is sufficiently vouched by *Heraclides Tarentinus*, an Author who never advanced a Falshood in Confirmation of an Hypothesis, as most of the Dogmatic Sect did; and who was as good a Judge of Medicinal Subjects as any one." *Galen* subjoins a pretty long Speech of *Heraclides*, from which it appears, that he practised Surgery with Success, and reduced the dislocated Thigh-bones of two Boys in such a manner, that they remained in their due and natural Situation. By these Instances he intends to refute those who assert, that the Thigh-bone, when reduced, cannot be retained in its Place; because the Ligament, which fixes the Thigh-bone to the *Acetabulum Coxæ*, is broken.

Galen also informs us, that he wrote Commentaries on all the Works of *Hippocrates*: And *Cælius Aurelianus*, who quotes his *Libri Curationum interiorum Passionum*, every-where gives us Specimens of his Practice. The same Author also makes mention of a Work of his called *Liber Regularis*, and another intituled *Nicolaus*.

As for his Practice, *Celsus* approves of the Advice he gives to feverish Patients, where the Bile or Crudities are offensive. The Advice is, that, by drinking moderate Potions, they should mix new Matter gradually with that which is corrupted: But he does not approve of his Method of curing a quartan Fever; for he ordered Purging in the first Days of the Disorder, and Abstinence for seven Days afterwards; by following which Advice, the Patient, tho' he should get free of his Disorder, will scarcely have Strength enough remaining to recover; and if the Paroxysms are frequent, they are sure to prove mortal.

From what has been said it is obvious, that however *Heraclides*, and the other Empirics, might be attached to Medicines, yet they did not neglect the dietetic Part of Physic, which principally consisted in Abstinence, and a seasonable Use of Aliments; and that *Celsus* was in the right, when he asserted, "That the dietetic Part of Medicine was divided into two Parts," since some made it a theoretic Art, and others grounded it upon Experience.

Besides those already mentioned, there were several other Physicians who made a considerable Figure among the Empirics, such as *Dionysius*, *Crito*, *Menodotus*, *Theodas*, or *Theudas*, by *Galen* quoted as one of those who wrote best in Defence of the Empiric Sect; *Herodotus* of *Tarsus*, *Sextus* surnamed *Empiricus*, three of whose Books are still extant, which contain the Sentiments of the *Pyrrhonians*, and ten others, in which he disputes against the Sciences in general; *Saturninus*, surnamed *Cylbenas*; *Calicles*; *Diodorus*; *Lycus*; *Æschrius*, the Townsman and Master of *Galen*, of whom that celebrated Physician gives a great Character, and of whom, he says, he learned a Medicine against the Bites of mad Dogs; *Philippus*, *Plinius*, *Valerianus*, and some others of inferior Note.

As Opium is thought to be a Remedy of great Importance in Physic, I must, on this Occasion, remark, that the first Account we have of it is in *Homer*, provided the *Nepenthe* there mentioned is Opium, or a Preparation of it, which is very probable: But it does not appear, that it was used in his Days as a Remedy for Distempers, but rather as a sort of Entertainment, as it is at this Time in the East. *Hippocrates* takes Notice of the Juice of the Poppy, and of the somniferous Poppy; but his directing the Use of it very seldom amounts to an Evidence, that it was not in his Days a Remedy much in Vogue. *Dioscorides*, L. 4. C. 65. from *Erastistratus*, relates, that Opium was condemned by *Diagoras* in Disorders of the Eyes and Ears, meaning, I suppose, the external Application. Now *Diagoras* was, as is said, the Servant of *Democritus*, and consequently contemporary with *Hippocrates*; and this is a sort of Evidence, that Opium was not in great Repute in his Time. Afterwards we meet with very little relating to it, till the Establishment of the Empiric Sect, and then we find it much prescribed. The Empirics, therefore, were probably the first who brought it into Reputation as a Medicine.

I shall say nothing in this Place of the Introduction of Physic into *Rome* by *Archagathus*, and the Fate of that Physician, because I have treated this Subject under the Article *ARCHAGATHUS*.

The next grand Innovation in Physic was introduced by *Asclepiades*, who lived in the Century immediately preceding the Birth of *Christ*; and who appears to have been a Person of great Abilities, and one perfectly well acquainted with the Weaknesses of Mankind. I have given some Particulars of his Life under the Article of his Name, and shall now specify his general Theory and Practice.

Galen says, that those who would either understand themselves, or explain to others, the Writings of *Asclepiades*, must know what he means by *incongruous or dissonant Elements* (ἡ ἀσυνεχὴς ἢ ἀσυνεχὴς), by *Molecules* (σύνεχες), by *Pores* (πόροι), and by a *particular Motion tending to subtilize the Parts of Matter* (ἡ ἐκ τῶν μορίων ἐκτείνουσα κίνησις). This Account given us by *Galen*, supposes, that these Terms were familiar to *Asclepiades*, and made, as it were, the Basis and Foundation on which the Whole of his philosophical System was erected. *Galen* also, elsewhere, observes, that, according to *Asclepiades*, Matter, considered as such, was of an unchangeable Nature; and that all the Objects which came under the Cognizance of our Senses, were composed of a Number of small Bodies, between which there were several Vacuities, or Interstices, void of Matter. He adds, that this philosophical Physician thought the Soul itself composed of these small Bodies; and when he makes the Comparison between the Sentiments of *Asclepiades* and those of *Hippocrates*, in order to render the Disparity more conspicuous, he says, the latter believed, that Substance or Matter, considered abstractedly, was universally the same; but that it was susceptible of Changes and new Modifications: That Nature, who, in all her Measures, took the justest Steps, and acted according to the highest and most exalted Principles of Art, had, amidst the amazing Variety of her other Productions, formed Plants, and the Bodies of Animals, and liberally given them Appetites and Propensities, by which every Plant, and every Animal, eagerly desires, and, as it were, attracts what is suited and adapted to the Condition of its Nature; and, with a secret Kind of Horror, flies from that which is opposite to it, or destructive of it. That this same bountiful Nature, diffusing her Benevolence still farther, provided against the Necessities of each Species, especially Man, the Glory of her other Productions, whom she powerfully assisted in the Expulsion of Diseases; as we might, in a particular Manner, observe on what he called *Critical Days*: *Asclepiades* denied all this, sneer'd at the boasted Nature of *Hippocrates*, laughed at his imaginary Faculties, and

still more at what he called *Attraction*; a Principle which *Asclepiades* did not admit in any Case whatever, not even with respect to the Load-stone and Steel, imagining that this Phenomenon was produced by a Concourse of Corpuscles, and a particular Disposition or Modification of the Pores.

Asclepiades, continues *Galen*, did not believe, that the Soul had originally any Fund of Knowledge implanted in it; that it had neither any darling Propensity, nor any natural Aversion, to any particular Object; that it was so formed as not to distinguish between these widely different Things, *Just* and *Unjust*, *Right* and *Wrong*; but that every thing, which seems to pass within us, is produced by mere Sensation, and depends entirely upon the Senses: That, besides this, the Animal is conducted and influenced to Action by certain *εἰκασίαι*, that is, Images, or Ideas represented to it, and by a certain Power of Memory, or Principle of Recollection. *Galen* informs us, that some of the Abettors of this wild Philosophy maintained, that the Soul was not dignified with a *rational Faculty*; but that we were necessarily and irresistibly led the miserable Captives of our Appetites and Passions, like the Brute Creation; and that we could neither wish nor hope for any thing but what was suggested to us, and forced upon us, by these cruel Tyrants; so that, according to these hopeful Philosophers, Generosity, Prudence, Moderation, Continence, and, in a Word, all the moral Virtues, were mere Chimeras, and Burdens and Impositions upon Mankind. They also maintained, that we neither loved each other, nor our own Off-spring; that the Gods delighted in a State of profound Indolence, and were entirely regardless of the Interests of Mortals; and that Dreams, Auguries, Prodigies, and Astrology, were Vanities, that rather deserved the Contempt, than called for the Veneration of Mankind.

Galen, who was of quite opposite Sentiments, has given us this Account of the most considerable Principles of the Philosophy of *Asclepiades*, which, as every one must perceive, is almost the same with that of *Democritus* and *Epicurus*; in whose Writings, or in those of their Commentators, we find most of the Doctrines, now advanced, more fully explained.

But the only ancient Author now extant, from whom we can learn the genuine Sentiments of *Asclepiades*, both with respect to Philosophy, and its Application to the Practice of Physic, is *Celsus Aurelianus*. *Asclepiades*, says that Author, established, as the constituent Principles of all Bodies, *Atoms*; which, according to him, are small Bodies, perceptible only by the Imagination, and are possess'd of no Quality; but which, from the Beginning of Time, being in an eternal and uninterrupted Motion, and happening casually to meet and dash against each other, by that means render'd themselves smaller, and are divided into an infinite Number of Particles, of different Bulks and Figures. He also maintained, that these Particles afterwards uniting, and mutually approaching each other, as they moved in their various Directions, form'd all the several Objects of Nature, which still preserve the same Disposition and Propensity to *Change*, as the Particles of which they were composed; and whose Bulk, Figure, Number, and Order, were casually altered and varied. When he was asked, Whence it happened, that these Atoms or Particles had no Qualities, since the Bodies composed and made up of them possess'd a considerable Number; he answer'd, That these Qualities were the direct and immediate Results of the Order, the Figure, the Number, and the Bulk, of many of these Atoms joined together; and for illustrating this Doctrine, he brought an Instance from Silver, which, when in the common Mass, was white, but black when filed down; and another from certain kinds of Horns, which, when entire, are black, but become white when rasped down.

From what has been said, it is obvious, there was some Difference between the Sentiments of *Asclepiades* and those of *Epicurus*, or *Democritus*, tho' both Parties acknowledged *Atoms*; for the Atoms of these two last-mentioned Authors were not divisible; whereas those of *Asclepiades* are supposed infinitely divisible, by their various Encounters and Collisions. What *Celsus Aurelianus* here calls Atoms, are, in all Probability, the same with what *Galen* calls *ὑπομολαί*, *Molecules*. *Epicurus* acknowledged Molecules as well as *Asclepiades*; and *Lucretius*, who was precisely contemporary with this Physician, speaks of something of a like Nature. But there is this Difference between the two Systems, that *Epicurus* and *Lucretius* do not look upon their Molecules as the fundamental and constituent Principles of Bodies, but only as the first Results and Effects of an Assemblage of Atoms, which, according to them, were the first, the true, and genuine Principles of Bodies; whereas *Asclepiades* seems to deduce his *Atoms* from Molecules, tho', according to the Representation of *Celsus Aurelianus*, he gives the Name of Atoms to Molecules themselves. But we shall be induced to believe, that this Author either did not justly translate, or, at least, did not perfectly understand *Asclepiades*, if we reflect upon what *Galen* says in his Work *De Theriac. ad Pijon. Cap. 11.* where he informs us, "That *Asclepiades*, retaining the real Sentiments of *Democritus* and *Epicurus*, with respect to the Principles of Bodies, did nothing but change the Names of Things, calling "Atoms *Molecules*, and a Vacuum *Pores*." But *Galen* himself established a formal Difference between the Sentiments of *Asclepiades* and those of *Epicurus* and *Democritus*, and represented them as directly opposite to each other; for, in his Work *De Hippocrat. & Platon. Decret. Lib. 5. Cap. 3.* he has these Words: "Whether the "Bodies of Animals are composed of Molecules and Pores, as *Asclepiades* believed; or whether they consisted of "small indivisible Bodies, as *Epicurus* maintained." The former of these Books is suspected not to have been wrote by *Galen*, but the latter certainly claims him as its Author. The Author of the Book intituled *Introductio*, which is also ascribed to *Galen*, tho' it is the Composition of another Hand, tells us, in the ninth Chapter of that Work, that the Elements of *Asclepiades* were *ὑπομολαί*, small brittle Molecules or Masses; and that it was this Brittleness which properly distinguish'd between the Principles or Elements of *Asclepiades*, and those of *Epicurus*, which were Atoms indissoluble and indivisible.

Celsus Aurelianus also informs us, that *Asclepiades* maintained, that nothing happened or was produced without some Cause, but that every thing was carried on by a certain Necessity; and that what was called *Nature*, was in reality no more than *Matter* and *Motion*. From this last Principle he infer'd, that *Hippocrates* knew not what he said when he spoke of *Nature* as an intelligent Principle, and ascrib'd to her what he call'd attractive, retentive, and repulsive Faculties. He also ridiculed the Sentiments of that ancient Physician, with respect to the Manner in which Nature puts a Termination to Diseases; or, in other Words, the Doctrine of *Crises*, which *Hippocrates* fixed to certain Days, such as the seventh, the fourteenth, and some others; adding, that these Crises are always most favourable when Nature is most strong, and always difficult when the Disease is superior to Nature; as if Nature and the Disease were two distinct Beings, acting with Intelligence, and exerting their mutual Endeavours to soil and rout each other. According to *Asclepiades*, all that *Hippocrates* observed, with respect to this, may be accounted for from Matter and Motion, two Principles which he thought sufficient to produce all the Effects commonly ascribed to Nature. According to *Celsus Aurelianus*, he maintained, that we were deceived, if we imagined, that Nature always did Good, since she often did a great deal of Harm. As for the Days particularly fixed for *Crises*, or the Days in which *Hippocrates* asserted we generally observed a Change in the Distemper, either for the better or the worse, *Asclepiades* denied that such Alterations happened on these Days rather than on others. He went still farther, and asserted that the Time of a *Crisis* did

did not happen of its own Accord, nor according to any particular Determination of the Gods for the Cure of Disorders; but that it rather depended on the Address and Dexterity of the Physician; that is, we must never wait without doing any thing till a Disorder terminates of its own Accord, in a certain Time, as *Hippocrates* did; but the Physician must, by his Care and Medicines, hasten on and advance the Time of the Cure. *Asclepiades* probably had this Inaction of *Hippocrates* in View, when he sneeringly said, *That the Medicine of the Antients was only a Meditation, or a kind of Study of Death*; by which he, no doubt, intended to insinuate, that the antient Physicians attended their Patients with a View to observe in what Manner, and by what Accidents, they died, rather than to prevent their Death, under a Pretence, that Nature ought, on such Occasions, to do all herself.

This is the Manner in which *Asclepiades* disputed against *Hippocrates*, and this the System he embraced, with respect to the Causes of Health and Diseases, at least in as far as we can collect it from *Caelius Aurelianus*, who is not always very clear, and who handles the Subject very briefly.

The particular Assemblage, said *Asclepiades*, of the various Corpuscles already mentioned, and represented as of different Figures, is the Reason why there are several Pores or Interstices, within the common Mass, form'd by these Corpuscles; and why these Pores are also of a different Size and Largeness. This being taken for granted, as these Pores are in all the Bodies we observe, it must of course follow, that the human Body has some peculiar to itself, which, as well as those of all other Bodies, contain other minute Bodies, which pass and repass by those Pores that communicate with each other; and as these Pores or Interstices are larger or smaller, so the Corpuscles which pass thro' them differ proportionably as to Largeness or Minuteness. The Blood consists of the largest of these Corpuscles, and the Spirits or the Heat of those which are smallest.

From these Principles *Asclepiades* infers, that the human Body remained in its natural State so long as these Corpuscles were freely received by the Pores; and, on the contrary, that it began to recede from that State when these Corpuscles found any Obstacle to their Passage; so that, according to him, Health depended on a just Proportion between the Pores, and the Corpuscles they were destined to receive and transmit; as Diseases, on the contrary, proceeded from a Disproportion between these Pores and the Corpuscles. The most usual Obstacle, on this Occasion, proceeds from the Corpuscles embracing each other, and being retained in some of their ordinary Passages, whether these Corpuscles arrive in too large a Number, whether their Figures are irregular, whether their Motions are too much accelerated, or whether, on the contrary, they move too slowly. But it also often happens, that the Passages or Pores themselves are ill-disposed for receiving and admitting the Corpuscles; when, for Instance, they become too small, or acquire an oblique Situation; or when they are braced up, or opened, and relax'd more or less than in a natural State they ought to be.

Among the Disorders produced by the Corpuscles stopping, of their own Accord, in the Passages, *Asclepiades* reckon'd Phrensies, Lethargies, Pleurisies, and burning Fevers. Pains, in particular, are class'd among the Accidents which derive their Origins from a Stagnation of the largest of all the Corpuscles, of which the Blood consists. On the contrary, he class'd, among the Disorders arising from the bad State and Disposition of the Pores, Deliquiums, Languors, Extenuations, Leanness, and Dropsies. These last-mentioned Disorders proceed from the Pores being too much relaxed and opened; and the Dropsy, in particular, proceeds from the Flesh being perforated with various small Holes, which convert the Nourishment, received into them, into Water. Hunger, and especially that Species of it call'd *Fames Canina*, is produced by the Opening of the large Pores of the Stomach and Belly; and Thirst by the Opening of their small ones.

Asclepiades seems to acknowledge still a third Cause of Disorders, which consisted in a Perturbation and Confusion of the Juices or Fluids, and of the Spirits; but he maintained, that these Juices and Spirits were only the antecedent, but not the concomitant or more immediate Causes of Disorders. He asserted the same with respect to Plenitude, which, according to him, often augmented the Disorder, tho' it was not the principal Cause of it.

Asclepiades, upon the same Principles, accounted for the Causes of intermitting Fevers. Quotidian Fevers, said he, or those whose Paroxysms return every Day, are caused by a Retention of the largest of the Corpuscles. Those of the tertian Kind, or such as return every third Day, depend upon a Retention of Corpuscles somewhat smaller than the former; and, lastly, quartan Fevers are produced by the Retention of the smallest of all the Corpuscles: This, in his Opinion, happens because the Pores may be sooner filled or emptied of the large Corpuscles, than of those which are small; at least this seems to be the Meaning of *Caelius Aurelianus*, tho' he speaks in such a manner, as to lay a Foundation for our thinking, that the Corpuscles, and not the Pores, emptied themselves.

The Practice of *Asclepiades* was, in a great measure, founded upon the System of which we have now given an Account. This Physician composed a Book concerning common Remedies, which he principally reduced to three, Gestation, Friction, and the Use of Wine, in every Disorder.

Asclepiades pretended to be the first who had treated of the two first of these Articles; but *Celsus* observes, that *Hippocrates* had done it before him, tho', in his usual Manner, he handled the Subject in a concise and succinct manner. All the Authors who treated of the Gymnastic Art, must also have made mention of these two Remedies; and *Herodicus*, the Inventor of that Art, did not neglect them. As for the Relief Patients might receive from the Use of Wine, *Asclepiades* received this Notion from *Cleophantus*, a Physician who was contemporary with *Erasistratus*, or lived soon after him, and who wrote on the Medicinal Uses of Wine.

Asclepiades proposed, by various Exercises, to render the Pores more open, and to make the Juices and small Bodies, which cause Diseases by their Retention, pass more freely; and whereas former Physicians had not recourse to Gestation till towards the End of long continued Disorders, and when the Patients, being entirely free from the least Degree of a Fever, were yet too weak to take sufficient Exercise by Walking, *Asclepiades* went much farther, and used Gestation from the very Beginning of the most burning Fevers. He laid it down as a Maxim, that one Fever was to be cured by another; that the Strength of the Patient was to be exhausted by making him watch, and endure Thirst to such a Degree, that, for the two first Days of the Disorder, he would not so much as allow them to cool their Mouths with a Drop of Water. It may possibly be said, that this Practice of *Asclepiades* cannot be reconciled with the Indulgence he promised his Patients. This is also observed by *Celsus*, who adds, that tho' this Physician treated his Patients like a Butcher, during the first Days of the Disorder, he indulged them so far afterwards, as even to give Directions for making their Beds in such a manner, that they should lie most softly and delicately.

Asclepiades also used Frictions on several Occasions, with a View to open the Pores. The Dropsy was one of the Disorders in which he practised this Remedy; but the most singular Occasion on which he practised it, was when, by the Force of Friction, he endeavoured to lull phrenetic Patients asleep. Upon the Whole, he placed
such

such a Confidence in Frictions, that he wrote far more largely on it than on the other two Remedies mentioned.

'Tis pretty surprising, that *Asclepiades*, who so warmly enjoined Exercise to the Sick, should condemn it in such as were found and in Health, and affirm, that it was not necessary for them: An Opinion which he borrowed from *Erasistratus*.

As for Wine, the third Panacea of *Asclepiades*, he did not rigidly adhere to the Rules observed by other Physicians in exhibiting it to their Patients: He readily allowed it to such as laboured under a Fever, provided the first Violence of the Disorder was somewhat abated. He did not forbid the Use of Wine to phrenetic Patients; and, what is still more surprising, he ordered them to drink it till they were intoxicated, pretending, by that means, to make them sleep; because, said he, Wine had a narcotic Quality, and procured Sleep, which he thought absolutely necessary for those who laboured under that Disorder. For this very Reason, one would think that he ought not to have prescribed it for lethargic Patients, who sleep too much; but he, nevertheless, allowed them the Use of it, in order to excite and rouse their Senses: He also made them smell strong-scented Substances, such as Vinegar, Castor, and Rue, in order to make them sneeze; and applied to their Heads Cataplasms of Mustard made up with Vinegar. *Asclepiades* did not always give pure Wine to his Patients, but sometimes mixed it with Sea-water, imagining that the Salt with which that Water was impregnated, penetrated farther, and opened the Pores more powerfully than the Wine alone. He allowed a Pint of this Wine for one Dose. He also ordered those who had the Jaundice to drink salt Water, in order to render the Body soluble. He was not, however, so rigidly attached to the Use of Wine, but he sometimes prescribed Water, and ordered the Wine to be diluted for such as used it; except in some particular Cases, such as the Phrensy, which he pretended to cure by Intoxication. He ordered, says *Celcius Aurelianus*, those who had Catarrhs, to drink double or triple the Quantity of Wine they used to do. So that, continues he, he made them drink half Water, half Wine. By this we see, that the Antients were very temperate with respect to the Use of Wine, when in perfect Health; and that, for the most part, they only used a fourth or a sixth Part of it, mixed with Water. Thus it is not surprising, that, considering their Moderation in this Particular, some Physicians should not discard the Use of Wine in Fevers. For those who laboured under Fluxes, he prescribed the drinking Water very cold; and, in several Cases, strongly recommended cold Water, and cold Baths.

To the Remedies now mentioned *Asclepiades* joined a particular Regimen with respect to Diet. *Celsus*, in the fourth Chapter of his third Book, informs us, that, after this Physician had confin'd his Patients to Abstinence for the first three Days, he allowed them Aliments on the fourth. But *Celcius Aurelianus*, Lib. 1. Cap. 4. *Acutor*. speaks of no precise Time. "*Asclepiades*, says he, began to nourish his Patients as soon as the Accession was diminished, not waiting till an entire Remission, giving to some Aliments on the first, to others on the second, to others on the third, and so on to the seventh Day." 'Tis scarce credible, that Fasting could be carried on, and continued till this last-mentioned Term. *Celsus*, however, when speaking of the Manner in which the Predecessors of *Asclepiades* conducted themselves, with respect to their Patients, in this Particular, allows, that these Physicians enjoined an Abstinence for six Days; adding, that the Climate of *Asia*, or that of *Egypt*, might allow of such a Degree of Abstinence; by which it would seem, that he thought the same thing could not be practised in *Greece* and *Italy*; tho', in the fifteenth Chapter of his third Book, he observes, that *Heraclides Tarentinus* ordered those afflicted with Quartan Fevers to fast till the seventh Day. Now *Tarentum*, from which that Physician derived his Surname, was in *Italy*, or in what was called *Græcia Major*; but we are not certain whether *Heraclides* practised in his own Country. One would think, that a total Abstinence is not here meant, and that the Patients only refrained from solid Food, using clear Decoctions of Barley, like those prescribed by *Hippocrates*, in the very Height of the Fever. But, if it had been so, these Authors would have infallibly taken notice of such a material Circumstance, whereas they do not so much as mention it.

We must not form a Judgment of what Nature was then able to bear, by what she can at present support, since the Method of Life followed by the Antients was widely different from ours.

Almost the whole Practice of *Asclepiades* consisted in the Remedies above-mentioned, or, at least, these were the principal of them. And, as he banished from Physic the greatest Part of the Medicines generally used by other Physicians, this Circumstance made some affirm, that he discarded Medicines entirely. *Scribonius Largus*, who lived about an hundred, or an hundred and twenty Years after him, represents the Assertors of this as guilty of Falshood; and, after having treated them pretty roughly, concludes, that tho' *Asclepiades* did not generally prescribe Medicines in acute Disorders, believing that Aliments and Wine, seasonably exhibited, were sufficient for answering the Intention; yet this did not hinder him from using, as well as other Physicians, Medicines in chronical and long-continued Disorders. This *Scribonius Largus* proves by a Passage of a Book wrote by *Asclepiades*, and intitled *Περὶ τῶν παλαιῶν φαρμάκων*, in which he expressly asserts, *That he was a wretched Physician who had not two or three Compositions in readiness, and whose Efficacy he knew with respect to all kinds of Disorders*. 'Tis probable the Compositions here meant by *Asclepiades* were rather topical Medicines than such as were designed for internal Use. The former of these he used at least as much, and as frequently, as any other Physician. He anointed his Patients with Oil, covered them with Ointments and Cataplasms, used Perfumes, Sternutatories, and Gargarisms, besides Clysters, of which he made frequent Use.

But what has made some assert, that he disapproved of all Medicines, is, that he very seldom prescribed Purgatives, the Word *Medicamentum*, among the *Latins*, and *φάρμακον* among the *Greeks*, which signify a Medicine in general of whatever kind, being also taken, in a more restrained Sense, for a purgative Medicine. It is obvious, that when *Pliny*, Lib. 3. Cap. 26. says, *That Asclepiades declared against all Medicines ordered to be taken by Patients, as injurious to the Stomach*, he only meant purgative Medicines. 'Tis in the same Sense *Celsus* has affirmed, that *Medicines generally prove offensive to the Stomach*. The Word *Medicamentum*, or *Medicamen*, is, by *Celcius Aurelianus*, placed alone, to signify a purgative Medicine. *Hippocrates*, says that Author, Cap. 13. Lib. 2. *Acutor*. waited till the fourth Day before he gave a Medicine; that is, as appears from what went before, a purgative Medicine. To these Authorities we may add that of *Hippocrates*, who uses the Word *φαρμακείν* to signify Purgation in particular, opposing the Word to *φλεβοτομήν*, to bleed. In *Aphor.* 47. Lib. 6. he says, those to whom Venesection and Purgation are necessary, ought to bleed and purge in the Spring.

We have already observed, that *Asclepiades* followed the Opinion of *Erasistratus* in some respects; he also embraced his Sentiments with regard to purgative Medicines. *Erasistratus* thought, that what was evacuated by means of Purgatives, came from the Blood and solid Parts of the Body, which were, as it were, melted and colliquated; so that, according to him, Purgatives produced Humours, instead of evacuating them. Thus *Scammony*, for Instance, changed the Blood into Bile; *Ilos Æris* converted it into Water; Bastard-saffron, and the *Grana Cnidia*, into Phlegm. *Asclepiades* believed the same thing; and when it was objected to him, that several

Patients

Patients recovered after an Evacuation of these Humours by proper Purgatives, he answered, that their Recovery was not owing to a Discharge of the bad Humours, as was commonly believed, but to a Diminution of Plenitude; or what was superfluous in the whole Body, tho' that superfluous Part was not more corrupted, nor in a worse State, than the rest of the Humours. According to *Celius Aurelianus*, *Acutor. Lib. 1. Cap. 4.* he also asserted, that the Excrements are not naturally excrementitious, nor so usefess and prejudicial as is commonly thought, since some Animals fed upon them, and were nourished by using them. But, tho' he believed, that some Relief might be obtained by Evacuations of this kind, yet he thought they were very rarely to be put in Practice, because the Good produced by them was counterbalanced by the Injury which Purgatives did, in other respects, to the Body.

Another Reason why *Asclepiades* purged so rarely was, his not thinking that Plenitude, or too large a Quantity of Humours, could be the conjunct and most immediate Cause of Diseases, that is, the Cause which produces, and supports or continues them, so that this Cause being removed, the Disorders must of course cease and terminate. "If it was so, said *Asclepiades*, it would thence follow, that, after sufficient and large Evacuations made in the Beginning of the Disease, the Patient must be forthwith cured; whereas the Disorder, instead of ceasing after these Evacuations, often increases." Plenitude, then, according to him, was no more than an antecedent or an accidental Cause of Diseases.

When the Patient was costive, *Asclepiades* thought Clysters sufficient to render the Belly soluble. These he exhibited almost in every Disease, tho' more rarely, and with greater Precaution, than other Physicians. But he was particularly afraid, lest the too frequent Use of this Remedy should make too large Evacuations, and, consequently, weaken the Patient too much. He also prescribed Vomits, which he ordered to be taken after Supper; but as for Purgatives, he almost banished them entirely from his Practice. What he thought, with respect to their manner of acting, must have influenced him to discard them. And the Authorities of *Celsus* and *Pliny* are not the only Foundations we have to believe, that this Physician rarely used them; since *Celius Aurelianus*, who gives us an Account of the Practice of *Asclepiades* in several Disorders, never represents him as prescribing a Purgative, except in the Case of a Palsy and a Catalepsis.

But if *Asclepiades* followed *Erasthratus* with respect to Purging, he dissented from him with regard to Venesection, whether the manifest Relief afforded by this Remedy convinced him of the Necessity of using it, or whether he found it more consonant to his Principles than Purgation. "Tho' *Asclepiades*, says *Galen*, *de Ven. advers. Erasthrat.* has not suffered any of the Tenets of the Antients to pass without Censure, having spared none of the Physicians who went before him, *Hippocrates* himself not excepted; and, tho' he has been daring enough sincerely to call the Medicine of the Antients a *Contemplation of Death*, yet he was not so foolhardy enough to banish Venesection from Physic."

Asclepiades laid a particular Stress upon Venesection in Pains, because, said he, these being produced by the Retention of the largest of the Corpuscles in the Passages, and these Corpuscles being composed of Blood, nothing but Venesection can draw them thence. For this Reason he bled in the Pleurisy, because that Disorder is accompanied with Pain; but in a Peripneumony, or Inflammation of the Lungs, he discarded Phlebotomy, because the Disease is generally unattended with Pain. Neither did he bleed in any Species of Fevers, nor even in a Phrensy. Since he did not bleed in these last-named Disorders, it appears surprising, that he should put this Remedy in Practice, in what *Celius Aurelianus*, *Acutor. Lib. 2. Cap. 38.* calls *Cardiaca Passio*, or Passion of the Heart, the Symptoms of which are a small and frequent Pulse, a general Loss of Strength, sudden Deliquiums, cold Sweats, and Coldness of the Extremities. What induced *Asclepiades* to use Venesection in this Case was, his believing, that the Disorder was produced either by a Tumor formed near the Heart, or by too great a Congestion, or too violent a Compression of the Corpuscles in the Pores of that Organ, which could not be disengaged, or set at liberty, by any other Means than Venesection. He also bled in the Epilepsy, and, in general, in all convulsive Disorders, as also in Hemorrhages, and Losses of Blood of every kind.

According to *Celius Aurelianus*, he used the same Remedy in the Quinsy, opening sometimes the Veins of the Arms, sometimes those under the Tongue, sometimes the frontal Vein, and sometimes those in the Corners of the Eyes, using also Cupping, with Scarification, and all with a View to open the Pores. If these Remedies did not answer the Intention, he made an Incision in the Amygdala; and even proceeded to what we now call the Operation of Bronchotomy, that is, the opening of the Larynx, or *Aspera Arteria*. But *Celius Aurelianus*, *Acutor. Lib. 3. Cap. 4.* speaks of this last-mentioned Operation as fabulous and imaginary, affirming that none of the Predecessors of *Asclepiades* had mentioned it; that it was the bold Invention of that Physician; and that none were foolish enough to practise it.

Asclepiades declared himself also for the Paracentesis, that is, piercing the Abdomen, in the Dropsy; but he ordered, that only a very small Perforation should be made. These two Operations sufficiently shew, that he did not religiously and universally stand to his Promise of employing only the mildest and most agreeable Remedies. These few Sketches are sufficient to give us a general Idea of his Method.

This Theory and Practice of *Asclepiades*, which Mr. *Le Clerc* has, with great Judgment, collected from all the Authorities extant, will furnish us with some Remarks, which must not be omitted.

In the first Place, then, however detestable his general Philosophy may appear, as destructive of all Morality, his Principles, with respect to Physic, seem to differ very little from those which are at this time generally received; tho' our Knowledge of the Circulation of the Blood, and some other anatomical Discoveries, have enabled us to explain ourselves better, and render our Ideas more intelligible. Thus his $\pi\epsilon\tau\epsilon\iota\sigma\epsilon\iota\varsigma$ (*Molecules*) cannot mean the same as the *Atoms* of *Epicurus*, but an Assemblage of these, forming small Bodies or Particles, blocking up the $\pi\alpha\sigma\sigma\epsilon\iota\varsigma$, or Passages, in order to form a Disease. These Molecules resemble the Obstructions or obstructing Matter of the Moderns, as the $\pi\alpha\sigma\sigma\epsilon\iota\varsigma$, or Passages, do the Capillary Vessels, in which they stagnate, or which they obstruct; for, by *Pores*, he does not mean what we call by that Name, but the Passages, or Interstices, thro' which the Molecules are conveyed. And the $\pi\epsilon\tau\epsilon\iota\sigma\epsilon\iota\varsigma$ $\pi\epsilon\tau\epsilon\iota\sigma\epsilon\iota\varsigma$ $\pi\epsilon\tau\epsilon\iota\sigma\epsilon\iota\varsigma$, or Motion tending to break and subtilize the obstructing Molecules, must mean the same thing which we understand by the Attenuation of the obstructing Matter, and which implies the very same as the $\pi\epsilon\tau\epsilon\iota\sigma\epsilon\iota\varsigma$, or Concoction of the Humours, so much insisted on by *Hippocrates*. According, therefore, to *Asclepiades*, Health consisted in a free Transmission of his Molecules, or little Masses, thro' the Passages, or Interstices, betwixt the solid Parts of the Body; according to us, in the uninterrupted Circulation of the Blood thro' the Vessels. Diseases were caused, according to his System, by whatever interfered with such a free Transmission of these Molecules; according to ours, by whatever interferes with the Circulation of the Blood and Juices thro' the Canals adapted naturally to convey them. The Cure of Distempers, in his way of Thinking, was brought about by subtilizing the Molecules or Masses, and opening the Passages destined to their Transmission; according to the modern Theory, by attenuating or dividing the Particles of the obstructing Matter, and rendering the Capillary Vessels pervious.

The other Remark I would make is, that, with respect to the Application of particular Remedies, *Asclepiades* ought to have experienced first, and reasoned afterwards; whereas he first reasoned himself into a good or a bad Opinion of certain Things, and, on this Foundation, condemned them or extolled them, and that without Moderation, having no Regard to the Experience of many Centuries, which had either established the Reputation of their Efficacy, or banished them from Practice, as pernicious. Thus he almost discharged Purging, a Remedy without which Physic would be an Art, at best, very trifling. Thus, also, he debarred his Patients from cooling Liquors, at the time when they might have been used to great Advantage; and intoxicated those labouring under a Phrenitis; a Practice which, however execrable, is less deleterious than the other; for I have known more Instances than one of Patients, who have been cured of Fevers, attended with a strong Delirium, in consequence of having been suffer'd, by Accident, to make themselves excessively drunk.

It has happened, unfortunately for those Adventurers in Physic, in all Ages, who, like *Asclepiades*, have trusted to their Imaginations more than their Senses, and who, like *Don Quixot*, have framed to themselves chimerical Difficulties, in order to shew their Address in conquering them, that their Practice has, like that of the above-mentioned Knight Errant, been very offensive to many innocent People, who have had the Misfortune to be the Subjects of it; and has farther exposed them to the Ridicule and Contempt of the Judicious.

Several Ladies among the Antients have been celebrated on account of their Medicinal Knowledge, some of which have been already taken Notice of. To these we must add the famous *Cleopatra*, Queen of *Egypt*, who lived a very few Years before the Birth of *Christ*. There are still extant some Books which bear her Name, and which treat of the Disorders incident to Women. If these Books were not spurious, the Preface would not allow us to doubt of their being wrote by this Princess, since the Author there affirms of herself, that she is the Sister of *Arfinoe*. Now it is well known, that *Cleopatra* had a Sister of that Name, who was put to Death by *Marc Antony*, in order to gratify the Ambition of that naughty Queen. It may perhaps be said, that these Books and the Preface are equally spurious; and, in all Probability, they are so; but, at the same time, it cannot be denied, that there were other very antient Medicinal Writings published under the Name of *Cleopatra*, soon after her Death. *Galen* makes mention of several ~~some~~ ^{some} ~~relations~~ ^{relations} relating to the Ornament and Embellishment of the Body, taken from the Books of one *Cleopatra*, and he does not quote these Books as recent: Now *Galen* lived about two hundred Years after this Queen of *Egypt*, of whom we now speak. What lays a Foundation for our ascribing them to this Lady, is, that Historians speak of her as a Princess extremely curious and learned. *Plutarch*, in the Life of *Marc Antony*, informs us, that she spoke several Languages: He also observes, that she ordered Experiments to be made on all Poisons, in order to know which work'd most expeditiously, and with least Pain. We have still a more satisfactory Proof of the Curiosity of *Cleopatra*, with regard to Medicine, which is the Experiment she performed before *Marc Antony*, when she dissolved a Pearl of great Value in Vinegar. As for the Books of *Cleopatra* still extant, they contain nothing very particular; and we only find in them the same Remedies the Physicians used in Disorders incident to Women. Among these Books we do not reckon those concerning Chymistry, which are ascribed to her, but which are evidently spurious.

Cleopatra was not the only one of her Sex and Quality who applied to Medicine. The celebrated *Artemisia*, Queen of *Caria*, had also the Reputation of understanding the same Art. She is said to have given her Name to the Herb which the *Latins* call *Artemisia*, and to which we give the Name of *Mugwort*; but others think, that this Herb rather derived its Name from the Goddess *Diana*, whom the *Greeks* called *Ἀρτεμις*, *Artemis*. *Artemisia* lived about the hundredth Olympiad, more than four hundred Years before *Cleopatra*. There was also another *Artemisia*, more antient than this.

It may be said, that little Confidence is to be reposed in the fabulous Stories relating to the Women of Antiquity who practised Physic; but tho' important Truths are sometimes wrapt up in fabulous Relations, yet it is not upon this single Circumstance, nor on the Histories of *Cleopatra* and *Artemisia*, that we maintain there were formerly several Women who not only studied, but also practised Medicine.

The Reluctance of most Women to discover certain secret Disorders to Physicians obliged them to look out for other Women, to whom they might intrust the Secret, and who could afford them Relief. Formerly this Right of practising Physic was disputed with the Women; and, in some Places, their Establishment in that way was openly opposed. An antient Law, enacted by the *Athenians*, so strictly forbid Women and Slaves from being concerned in Medicine, that the Art of delivering Women in Child-birth, which was thought a Branch of it, could be exercised only by Men: But some of the *Athenian* Ladies choosing rather to die than admit of the Assistance of Men, it is said, that one of them, called *Agnodice*, who had learned Medicine, and the Art of Delivering, from one *Herophilus*, disguised herself in the Habit of a Man, in order to assist the others. This being discovered, the *Athenians* enacted another Law, permitting free Women to learn Medicine.

Long before this the *Egyptians* had Midwives; and the *Sacred History*, *Exod. Chap. 1.* has preserved the Names of two *Egyptian* Women who exercised this Profession, and who saved a great Number of *Jewish* Children from falling the guiltless Victims of *Pharaoh's* Cruelty. One of these was called *Shiphrah*, and the other *Puah*.

The Midwives of *Greece* and *Italy* not only delivered Women, but also practised Medicine: Hence the *Latin* Words *Obstetrix* and *Medica* are used as convertible Terms, in the Writings of the antient Lawyers. Accordingly *Ulpian*, *Lib. 1.* has these Words: *Quoties de pragnatione dubitatur, quinque obstetrices, id est, Medicae, ventrem jubentur inspicere.* "In Cases where Pregnancy is dubious, five Midwives, or Female Physicians, are appointed to inspect the Womb." The *Greeks* had also their *ἰατρὶναι*, a Word which exactly corresponds to the *Latin* Word *Medicae*. These Women treated all Disorders peculiarly incident to the Sex; and Hysteric Affections belonged principally to their Province, as we may infer from a Passage of *Galen de Locis Affectis*, *Lib. 6. Cap. 5.* where it is observed, that these Women themselves gave the Name *Hysteric* to the Disorder, which still bears that Name. These very Women, and the Disease now named, are mentioned in an Epigram of *Martial's*, which begins,

Hystericam vetulo se dixerat esse Marito.

They also applied to every thing relative to the Ornament or Embellishment of the Body; such as not only all kinds of Paints, but also all Medicines which remove or conceal the Imperfections and Deformities produced by Diseases, or any Accidents whatever.

Several of these Women also wrote Books upon Medicinal Subjects, which are cited by the antient Physicians. In *Aetius* we find several Fragments of the Books of one *Aspasia*; but we know not whether this *Aspasia* is the same with the beautiful Lady who was Mistress to *Cyrus* the younger, and *Artaxerxes*, Kings of *Persia*. *Elian*, who

who gives us a pretty large Account of this Lady, makes no mention of this Circumstance; but since he represents her as of so vast and extensive a Genius, that the Princes above-mentioned consulted her in the most important Points of Politics, it is possible she might have also understood Medicine, and wrote upon it; or, at least, that her Knowledge of it may have given Occasion to publish the Books, now mentioned, under her Name:

There are some good Remedies among those *Aspasia* proposes, in several Disorders of Women; at least, *Ætius* was of this Opinion, since he gave them a Place in his Collections; into which he, in all Probability, put what he thought best in the several Authors he perused. Others of *Aspasia's* Remedies were dangerous, such as those she ordered to procure Abortion, and render Women barren: Things which were equally criminal among the Pagans as among us, as we may infer from the Oath of *Hippocrates*, and from the Laws antiently enacted against them. *Aspasia*, however, asserted, that her Views, in this Particular, were by no means criminal; since she only proposed to preserve the Lives of such Women as cannot be delivered without a manifest and unavoidable Danger of their Lives.

Galen and *Pliny* mention one *Elephantis*, who also wrote concerning abortive Remedies, and Paints. In all Probability, this is a different Person from her who became famous for her lascivious Verses, and who is mentioned by *Suetonius* and *Martial*.

Galen also gives us some Medicinal Compositions of one *Antiochis*, who probably was the same with her to whom *Heraclides Tarentinus* dedicated some of his Books.

We also find one *Olympias* of *Thebes*, one *Sotira*, one *Salpe*, and one *Lais*, cited by *Pliny*, who tells us, that *Sotira* was also a Midwife: Their Remedies were, for the most part, superstitious; but this is no surprising Circumstance, since Medicines of that Nature have, in all Ages, suited the Taste of the Vulgar, especially that of the Women.

In *Galen* there is mention made of one *Fabulla Libyca*, who is by some class'd with the preceding Female Physicians. *Cornarius* is of Opinion, that we ought to read *Livia*, and not *Libyca*; and he maintains, that this Woman did not practise Physic, but that *Galen* only mentions her as the Person for whom the Medicine was prepared.

Victoria, *Salviana*, or *Salvina*, and *Leoparda*, are quoted by *Theodorus Priscianus*. One *Africana* is also mentioned by *Marcellus Empiricus*; but whether this was the proper Name of a Woman who practised Physic, or an Epithet bestow'd on her from her Country, is hard to determine. *Scribonius Largus* speaks of an *African* Woman, of whom he purchased a Secret for the Colic.

To all these Female Physicians some add *Trota*, or *Trotula*, and one *Achromos*, of whom *Tiraqueau* thinks *Hippocrates* has spoke, and made mention of a Remedy which that Woman had for the Dysentery. See the Article ACHROMOS.

The Greeks had also their *ἰατροὶσσι* and their *ἰατρὸν*, Words which answer to the *Latin* *Medicæ*. The former of these Words occurs towards the End of *Hippocrates's* Work *De Carnibus*; and, from what follows, it is evident he gives that Name to the Midwives, who were commonly called *μαῖαι*. The latter occurs in *Galen, de Locis Affectis, Lib. 6. Cap. 5.*

If it should be asked, whether these *Iatrinæ*, or *Medicæ*, were all Midwives; and if there were none of them who, without meddling with Deliveries, treated Women in their other Disorders; it is possible, there were some who only exercised the last of these Branches, and that all the Midwives were Female Physicians; tho' all the Female Physicians were not Midwives.

I cannot finish this Account of Female Practitioners, without retracting an Error I have been guilty of, with respect to *Agamede*, and which I was led into inadvertently by many Authors who have wrote on the History of Physic. The Knowledge of *εἰσπραξία*, which *Homer* attributes to this Lady, does not seem to import any Medicinal Skill she was possessed of, but that she was an infamous Sorceress; and it is in this Light that *Theocritus* places her, if I remember right.

The next grand Revolution in Physic was brought about by *Themison*, a Native of *Laodicea*, and Disciple of *Asclepiades*, who lived not long before *Celsus*, as we may infer from a Passage in this Author, who speaks of him as a Man whom he might have seen, but who was not alive at the Time he wrote; for in his Preface he has these Words: *Ex Asclepiadis successoribus Themison, nuper, ipse quoque quædam in senectute deflexit.* "Among the Successors of *Asclepiades*, *Themison* himself has lately, and in his old Age, made some Innovations in the System of his Master." The Word *nuper* implies, that this had happened a short time before *Celsus* wrote; now *Celsus* wrote towards the latter End of the Reign of *Augustus*, or about the Beginning of that of *Tiberius*.

The Sect which *Themison* founded was called the *Methodic*, because he endeavour'd to find a Method of rendering Medicine more easy, both to be learned and practised, than it formerly was. His Principles were the following:

I. He asserted, that a Knowledge of the Causes of Diseases was not necessary, provided we had a due Regard to what Diseases have in common, and analogous among themselves. This Foundation being laid, he ranked all Disorders under two, or at most three, principal Genuses: The first included Disorders arising from Stricture; the second those arising from Relaxation; and the third those of a mixed Nature, or such as partook both of Stricture and Relaxation.

II. *Themison* also observed, that Diseases are sometimes acute, and sometimes chronical; that for a certain time they increase; that at another time they are at their Height; and that, at last, they were observed to diminish. This is the same Distinction *Hippocrates* made before him. In consequence of this, *Themison* said, that acute Diseases must be treated in one way, and those which are chronical in another; that one Method must be follow'd with such as are in their Augmentation, another with such as are at their State or full Height, and still another with those which are in their Declension. He maintained, that the Whole of Medicine consisted in the Observation of that small Number of Rules which are founded upon Things altogether evident. He said, that all Disorders of every Nature, included under any of the above-mentioned Genuses, ought to be treated in the same manner, from whatever Causes they proceeded, whatever Parts they attacked, in whatever Country, or whatever Season, they should happen. Upon these Principles he defin'd Medicine to be a *Method conducing to the Knowledge of what Diseases have in common with each other, and which at the same time is evident.*

Thus *Themison* agreed with the Empirics in this, that he did not depend upon Circumstances of an obscure and uncertain Nature; and with the Dogmatics in this, that he admitted Reasonings as well as they. He also agreed with these last in this, that he established, as the Foundation of his Method, *Indication*; which, being the Result of Reasoning, was of course rejected by the Empirics. But if he agreed with the Dogmatics, with respect to the Doctrine of Indication in general, yet he differ'd from them in acknowledging no other Indication, than what was furnish'd by the *Genus* of the Disease; whereas the Dogmatic Sect maintained, that neither the Genus nor the

the Species of the Disease could indicate the Remedy proper to be used, and the Measures to be taken, for promoting a Cure; but that, on such Occasions, we ought rather to consider the Cause which originally produced, and still maintains and supports the Disorder. This Cause, say they, naturally indicates the Remedy; since, in all Diseases, the Remedy consists in removing the productive Cause. *Themison* also rejected the other Indications, which the Physicians of the Dogmatic Sect drew from the Age of the Patient, his Strength, his Country, his Manner of Life, the Season of the Year, and the Nature of the affected Part. In this respect he also differed from the Empirics, who, tho' they would not hear of Indications, had nevertheless a great Regard to the above-mentioned Circumstances.

'Tis not difficult to perceive the Difference between the System of *Themison*, and that of *Asclepiades* his Master. The latter thought, that Health consisted in a just Proportion between the Pores or Passages of the Body, and the Corpuscles or Masses which ought to pass thro' them; and that Diseases were produced by a Disproportion of these same Pores and Corpuscles. This Opinion of *Asclepiades* laid a Foundation for that of *Themison*; but tho' the former consider'd a Part of these Pores as Cavities, or invisible Interstices, produced by a Concourse of Atoms at the Formation of each Body, and reasoned upon this Topic like a Philosopher, yet the latter did not carry the Matter so far, but, in all Probability, only believed, that there were Pores of some Kind, tho' invisible, in various Parts of the human Body. This, at least, was the Sentiment of some of the Methodics who succeeded him, and who, for illustrating their Opinion, brought, as an Instance, the Skin; the Pores of which are not perceptible, tho' it is very certain, from the Sweats discharged from it, that it is furnished with a considerable Number. *Themison* could not admit the Pores of *Asclepiades*, since that would have been contrary to his Principles, which ought, as we have already observed, to be drawn from evident Circumstances. He acknowledged Pores, but would not determine of what Nature they were. The Pores, said he, are not subjected to our Senses; but I can form an Idea of them, from the Sweat discharged by them. In this Sense it was that the Methodics maintain'd Medicine to be a Means or Method of leading from one Thing evident and apparent, to another which was not before known.

But the principal Difference with respect to the Means of finding Remedies, between the Sentiments of *Asclepiades* and these of *Themison*, is, that tho' the former sought for the Causes of Health and Diseases in the Proportion or Disproportion of the Pores, yet he did not believe, that this general Idea was sufficient for a Physician, but that he must inform himself of other Circumstances of a more particular Nature. *Asclepiades* believ'd with *Hippocrates*, and all other Physicians except the Methodics, that we ought to observe what Diseases have in common with each other, and what they have peculiar to them. But *Themison* did not, like *Asclepiades*, apply himself to the Investigation of the Causes of Diseases. He wanted only to know their Genuses, which, he said, he discover'd by evident Signs in the same manner as the Empirics pretended to know, and distinguish Diseases by their Signs, and not by their Causes, which they took to be incomprehensible. In this the Empirics and Methodics agreed, for both inform'd themselves of the Nature of Diseases from their Signs, a Circumstance which made them very exact and circumstantial in enumerating all.

Most of these Particulars are taken from *Celsus*, and they are all we can discover with respect to the System of *Themison*, which appears to differ considerably from that of *Asclepiades*; tho' *Celsus* seems to insinuate, that the Difference is not great. 'Tis true, that *Themison*'s Practice came pretty near that of *Asclepiades*, as we see from some Extracts from his Works preserv'd by *Caelius Aurelianus*. But as he did not invent his Method till he was old, it is probable he had not Time to adapt and accommodate his Remedies to his Reasonings on the Nature of Diseases. "*Themison*, says *Caelius Aurelianus*, Lib. 1. Cap. 1. *Tardar*. was as yet involv'd in the Errors of *Asclepiades*, and the Methodic Sect was then only in its Infancy, and not well form'd."

Among the Faults *Themison* committed against the Laws of *Method*, he is said to have order'd cold Water to be drunk by such as had been blooded, which, according to the other Methodics, was ordering two Remedies directly contrary to each other; Bleeding in order to relax, and cold Water in order to brace up, or contract. *Caelius Aurelianus* also observ'd, that in several Disorders, *Themison* order'd Cathartics. He purg'd, for Instance, in Asthmæ with Diagrydium, and in Lethargies with Aloes dissolv'd in Water. In the Disease called *Catalepsis*, he also purg'd with Diagrydium, to which he join'd Callor, probably as a Corrector. He also used some other Purgatives, of which the Methodics afterwards disapprov'd. *Themison* also differ'd from the succeeding Methodics, with respect to the proper Times of taking Aliments, of using Exercise, of Bathing, of Bleeding; of applying Cupping-glasses and Leeches, which last Remedy was not, in all Probability, first introduced into Practice by *Themison*. This Remedy was however, continued by the Physicians of the Methodic Sect, who imagin'd that as the opening of the great Veins produc'd a general Relaxation thro' all the Body, so Leeches caus'd a Relaxation of the particular Parts, to which they were apply'd almost like Cupping-glasses, which they sometimes put on, after the Leeches dropt off, in order to extract more Blood, or, in their own Words, *to relax more*. Tho' it is probable, that the Use of Leeches was first observ'd by Peasants, upon observing the Effects they produc'd when they fix'd upon their Legs, yet we cannot precisely determine the particular Time at which Physicians began to use them as a Remedy.

Dioscorides informs us, that *Themison*, being once bit by a mad Dog, or, which is more surprising, having only constantly attended one of his Friends, who was mad from this Cause, fell into the same Disorder; but was at last cur'd after having suffer'd a great deal. *Caelius Aurelianus* tells us, that *Themison*, being subject to this Disorder, frequently propos'd to write upon it, but that he relaps'd every Time he attempted to put this Design in Execution. *Juvenal* has upbraided this Physician, or at least a Physician of this Name, with the large Number of Patients he killed.

Quot Themison ægros autumnis occiderit uno.

This Line, however sarcastical it may at first View appear, does not convey a very disadvantageous Idea of *Themison*, since it seems to amount to a Proof, that Numbers committed themselves to his Care. *Galen*, *Medicam. Local. Lib. 7. Cap. 2.* informs us, that *Themison* was the first who gave a Description of the *Dracodum*, which is a Medicine compos'd of the Juice and Decoction of the Heads of Poppies, and Honey. *Galen* also observes, that he wrote a Book concerning Plantain, in which he assert'd, that he was the first Discoverer of that Plant. He also invented a purgative Medicine called *Hiera*.

Themison had in all Probability, several Disciples, but we have only the Names of two of them left upon Record, one *Proculus*, and one *Eudemus*, mention'd by *Caelius Aurelianus*. As for his Followers, all the Methodic Sect may be look'd upon as such, tho' they made considerable Innovations in his Principles, and each endeavour'd to erect himself as Chief of the Sect. We have very imperfect Accounts both of *Proculus*

Ius and *Eudemus*. *Cælius Aurelianus* only informs us, that the latter of these gavé Clysters of cold Water to those Patients who were called *Cardiaci*.

Veſtius Valens is by *Pliny* represented as the Founder of a new Sect; and, in all Probability, he struck into that of *Themison*, but began to make some Innovations in it; as did almost all the Methodics who came after him, every one of whom pretended for this Reason to be the Author of a new Sort of Medicine. *Pliny* informs us, that this *Valens* was very eloquent, and acquir'd an uncommon Reputation for his Skill in his Profession. In all Probability, this *Valens* is the same with the Person whom *Cælius Aurelianus* calls *Valens* the Physician.

Themison, as we have already observ'd, being old when he laid the Foundation of his Sect, and not having sufficient Time to meditate maturely upon his infant System, left the Charge of it to those who were to come after him. His Disciples, of whom we have already spoke, ought to have endeavour'd at once to establish and improve it. But we read of nothing they did in this way; nor do we hear of any Advances made by *Veſtius Valens*. In all Probability, the Methodic Sect was not so much promoted by the joint Endeavours of these Men, as by the single Attempts of *Theſſalus*, who lived under *Nero*, about fifty Years after *Themison*, and who first enlarg'd or corrected the Principles of that Physician so successfully, that he acquir'd the Reputation of having perfected the Method. This *Theſſalus* was a Native of *Tralles* in *Lydia*; and if we may believe *Galen*, the Son of a Wool-carder, by whom he was brought up among a Set of Women. But the Meanness of his Extraction, and the little Care which had been taken of his Education, did not prevent his rising in the World, and making a very considerable Fortune. The Means he used for this Purpose, were to get himself introduced to the Great, and, as he knew they lov'd Flattery, he forgot none of the fawning Arts that could gain him a Place in their Favour. He was of a singularly complaisant and submissive Behaviour, which, according to *Galen*, was a Character quite the Reverse of that sustained by the antient Physicians, especially the Descendants of *Esculapius*, who commanded their Patients, as a General does his Soldiers, or a Prince his Subjects. *Theſſalus*, on the contrary, was as obsequious to his Patients as a Slave is to his Master. If they were inclin'd to bathe, he allow'd it; if they wanted Ice or Snow to quench their Thirst, he order'd it; and if they desired Wine, they might have it. These Reflections of *Galen*, who adds, that *Theſſalus* had many Fellow-labourers in the cozening Art, shew us, that long ago, as well as now, Mankind made a Distinction between the End of an Art, and the Profit of the Artist.

Galen and *Pliny* accuse *Theſſalus* of excessive Insolence and Vanity, and report that he gave himself the Air of despising all other Physicians, whether his Predecessors or Contemporaries, with a View, no doubt, of enhancing his own Character, a Practice too frequent amongst the Mean-spirited and Disingenuous, and the certain Characteristic of a Scoundrel. So intolerable was the Vanity of *Theſſalus*, that he assumed the pompous Title of *Conqueror of the Physicians*, which he caused to be put upon his Tomb in the *Appian* Way. Never was Mountebank, continues *Pliny*, attended with a larger Number of Attendants, than *Theſſalus* generally had about him; and this Circumstance is the less to be wonder'd at, if we consider, that he promised to teach the whole Art of Medicine in six Months; and in reality the Art might be learned much sooner, if it comprehended no more than what the Methodics thought necessary; for they cut off the Dogmatic Examination of the Causes of Diseases; and substituted, in the room of the laborious Observations of the Empirics, Indications drawn from the Analogy of Diseases, or the mutual Resemblance they bore to each other. So that scarce any thing remain'd for the Methodics to do, but to know and make a Choice of Remedies, which was also no difficult Task, since they used only two Sorts.

Galen gives us the following Account of the Difference between the Sentiments of *Theſſalus* and *Asclepiades*, by which we may be somewhat let into the System of the former. “*Theſſalus*, says he, *Method. Medend. Lib. 1. Cap. 6.* has reduc'd all Disorders curable by Regimen to two Kinds, as *Asclepiades* did. But he has abandon'd, as useless, several Particulars in the Practice of *Asclepiades*.” That is, tho' *Asclepiades* look'd upon the Dilatation or Contraction of the Pores to be the Circumstances which constitute the principal Kinds of Diseases, yet he believ'd, that we must seek for more particular Differences, and distinguish what each Disease has peculiar to itself. *Galen, Method. Medend. Lib. 4. Cap. 4.* makes *Theſſalus* opposite both to *Asclepiades* and *Themison*: “*Theſſalus*, says he, has chang'd some things in the Syſtem of *Asclepiades* and *Themison*: For whereas these believ'd, that, as Health consists in the Symmetry and Proportion of the Pores, and Diseases in their Disproportion, the Restoration of this Symmetry was the Re-establishment or Recovery of Health; *Theſſalus* thought, that in order to cure a Disease, it was necessary entirely to change the whole State of the Pores of the affected Part. It is, adds *Galen*, from this Opinion that the Word *Metasyncrisis* has been deriv'd; which signifies nothing more than a Change happening in the Pores.”

As for the other Circumstances in which the Systems of *Theſſalus* and *Themison* differ, we know nothing certain about them; only this in general we are assured of, that *Theſſalus* chang'd the Tenets of *Themison*, and was thought to have perfected the Methodic Medicine; so that we may ascribe to *Theſſalus* all the Principles of the Methodics who came after him. But we learn from *Galen*, that the Physicians of this Sect did not agree very well among themselves. Some of them, for Instance, maintain'd, that Relaxation and Stricture were common to all Distempers in general; others, that this Relaxation and Stricture did not serve as Indications, but in Diseases to be cur'd by Regimen only. By this means they in a particular manner excluded those Diseases which call for the Assistance of Surgery. 'Twas no doubt this Opinion which oblig'd the Author of the Book intitled, *The Introduction*, ascrib'd to *Galen*, to add new Relations or Resemblances to these of *Themison*; and 'tis possible, these new Relations or Resemblances are those invented by *Theſſalus*.

The Author of *The Introduction* observes, that there are not only Relations or Agreements with respect to Diseases, but also with respect to their Cures; and that the former are called passive, and consist in Stricture and Relaxation; and the latter curative, and consist in relaxing and contracting, besides another Kind of Relation which he calls *temporary*, and which respects the different Manners of proceeding in the different Stages of Diseases. After making these Remarks, which give us a general Hint of the Sentiments of *Themison*, he adds, that there are *Relations* which concern Surgery in particular, and which are different from the others. These last-mention'd *Relations* consist in taking away or removing what is foreign to the Body in its natural State.

Two Kinds of Things, continues this Author, may be called foreign with respect to the Body; that is, things external, and things internal. The external things are, for Instance, a Thorn, or an Arrow, or any other external Object which wounds, and which, remaining in the wounded Part, proves troublesome, and prevents its Cure. 'Tis obvious, that foreign things of this Nature ought to be extracted. As for internal things, the same Author makes three Sorts of them: There are, says he, certain things in our Bodies which are Parts of them, and which are, nevertheless, as troublesome and offensive as if they were foreign. When, for Instance,

Instance, Bones are dislocated or fractur'd, these Circumstances demand, that they should either be remov'd from the Situation in which they are, or again reduc'd to their natural Position.

Secondly, things become foreign by their Excess, such as their Largeness, Bulk, or Superfluity : Of this Kind are all the different Kinds of Tumors, all Abscesses, Excrecences, Warts, or a sixth Finger. Some of these demand only to be laid open, or to be discuss'd ; others require Amputation, or being remov'd. There are also foreign things arising from a Defect, such as deep Ulcers, and the Hare-lip, which indicate a Necessity of supplying what is wanting.

These are the Relations of Chirurgical Disorders, and of the Remedies appropriated to them. This Author adds another Species of Relations, which he calls Prophylactic, and which regard Diseases caused by Poisons, venomous Beasts, and, in general, by every thing that can secretly, and without being discovered, produce Disorders of any kind.

Tho' we are not absolutely certain, that *Theffalus* was the Author of all these Relations, yet 'tis highly probable, that he invented those which regard Surgery ; since 'tis well known, that he established several different Species of the Genuses already mentioned. " Those, says *Galen*, *Method. Medend. Lib. 5. Cap. 1.* who followed *Theffalus*, believe, that all Ulcers, in whatever Part of the Body, ought to be cured in the same manner. If they are hollow, they must always be incised ; if equal with the rest of the Surface of the Body, they must always be cicatrized ; if fungous and superfluous Flesh arises, it must always be consumed ; if they are recent and bloody, their Lips must be forthwith united and consolidated."

Theffalus also established a Relation or Analogy with respect to old Ulcers in particular. His own Words, taken from *Galen*, are as follows : " The Relations of inveterate Ulcers, which will not close, or which, being once cicatrized, open afresh, are of the highest Importance ; since, with respect to the former, we must necessarily know what hinders them from closing, in order to remove it ; and, with respect to those which break out again after they have been once cicatrized, we must know what is the Cause of their appearing afresh, that we may take effectual Measures for rendering the Cicatrix secure and durable, by changing the Habitude and Disposition of the Part affected, or of the whole Body ; by inducing such an Alteration, as that it may not any more be subject to the like Infirmary ; and that this End may be obtained by metasyncritical Medicines."

On this Occasion I cannot forbear remarking, that this Doctrine of *Theffalus* has been embraced, with great Reason, by all succeeding Surgeons. Mr. *Sharp*, in the following Passage, means the same thing.

" It will be often in vain to pursue the best means of Cure by topical Application, unless we are assisted by internal Remedies ; for, as many Ulcers are the Effects of a particular Indisposition of Body, it will be difficult to bring them into Order, while the Cause of them remains with any Violence ; and, indeed, there are hardly any Constitutions where Ulcers are not assisted by some Physical Regimen."

Theffalus, a little afterwards, goes on thus : " Inveterate Ulcers, which do not close, or which, being brought to a Cicatrix, open afresh, furnish the following Indications. First, those which cannot be cicatrized, indicate the Removal of the Cause which hinders their Cicatrization, the Renovation of the Parts affected ; and that, after they have been reduced to the State of a recent Wound, they should be treated as such. If this should not succeed, we must use lenitive Medicines, and such as are prescribed in Tumors accompanied with Inflammation. As for Ulcers which, being once cicatrized, open afresh, when they are beginning to exulcerate, or appear a second time, they indicate, that they should be treated like a Phlegmon, or a recent Tumor with Inflammation ; and that we should apply lenitive Cataplasms to them, till the Irritation is over, after which the Surgeon must endeavour to induce a Cicatrix, and afterwards apply, all around the Part where the Ulcer was, a Plaster in which Mustard is an Ingredient, and which may produce a Redness of the Part, or some other Medicine which may alter the Disposition of the Parts, so that they may not, for the future, be susceptible of the same Disorder. If, by these means, the bad Disposition of the Part cannot be corrected, we must endeavour to change the Habit of the Body in general by a *Metasyncrasis*. This End may be obtained by performing various Exercises, with respect to which, those who are skilled in the Gymnastic Art are to be consulted, or by augmenting and diminishing the Quantity of Aliments alternately."

From what has been said, it appears, that *Theffalus* did not adhere to the Relations of *Themison* ; and that what the former meant by *Metasyncrasis*, was a Change he pretended to make either in the whole Body, or in some particular Part of it. See METASYNCRISIS.

If *Theffalus* was not the Author of the *Metasyncrasis*, yet 'tis certain he was the first who introduced Abstinence for three Days, by which the Methodics began the Cure of all Disorders, and from which they were afterwards called *Diatritarii*, from the Greek Word *διατριβή*, the Name given by *Theffalus* to this Abstinence.

Theffalus's Arguments for not using Purgatives are almost the same with those of *Erasistratus* or *Chrysippus*, who were the first who declared against Medicines of this kind, and were afterwards supported by *Asclepiades*. Upon this Topic *Theffalus* argued in the following manner : " Let us take, says he, an Athletic, as robust and vigorous as we can possibly find ; let us give him a purgative Medicine, and we shall find, that, tho' before he had no Complaint, the Matter evacuated by the Medicine shall be corrupted. Hence we infer, that the corrupted Matter discharged was not before in the Body of the Man, since he was blessed with a good State of Health. Hence also we infer, in the second Place, that the Medicine has, on this Occasion, produced two Effects : The first of which is, the corrupting what was before uncorrupted, and the second, the evacuating or discharging it." *Theffalus* adds, a little after, " That the Physicians of the *Hippocratic* Sect were Fools for not adverting, that, when they intended to purge Bile, they purged Phlegm ; and, on the contrary, when they intended to evacuate Phlegm, they discharged Bile ; whence he draws this Consequence, that Purgatives must prove prejudicial, because they produce Effects quite the reverse of what were intended by them."

By this way of arguing, without consulting the real Effects of Medicines as warranted by Experience, all the Remedies which have ever been employ'd for the Relief of the Sick, may be reasoned out of Practice, with an equal Appearance of Justice.

We have nothing more to observe with respect to *Theffalus*, except that he wrote several large Volumes, a Piece of Conduct not to be reconciled with his professing to teach the Whole of Medicine in the Space of six Months, since, in all Probability, it would take a longer Time to read these Productions.

The most skillful of all the Methodic Sect, and the Man who put the last Hand to the Method, was *Soranus*. At least this is the Judgment formed of him by *Caelius Aurelianus*, who was of the same Sect, and who observes several Faults committed by *Theffalus*, with respect to the Principles of the Methodic Sect, tho' others looked upon him as the Perfector of that Species of Medicine. 'Tis probable, that the Methodics being divided among themselves, one Party of them gave the Preference to one Physician, and another to another, and that *Caelius Aurelianus* only prefers

prefers *Soranus* to *Theffalus*, because he was prejudiced in favour of the Sentiments of the former. But *Soranus* was esteemed by Physicians who were not of his own Sect. *Galen*, who does not spare the Methodics, and particularly abuses *Theffalus*, says nothing against *Soranus*. On the contrary, when giving a Description of some Medicines used by him, he says, that he himself had, from Experience, found them to be good. *Suidas* also informs us, that *Soranus* wrote several Books, which were very much esteemed.

Soranus lived under the Emperors *Trajan* and *Adrian*. He was a Native of *Ephesus*, and his Father's Name *Menander*, and that of his Mother *Phabe*. He afterwards remained for some time at *Alexandria*, but at last settled at *Rome*, where he practised Medicine under the above-named Emperors. His Writings are lost, but this Misfortune is, in some measure, retrieved by the Works of *Cælius Aurelianus*, who tells us himself, that he has done no more than translate the Productions of *Soranus*.

There were three or four other Physicians of the Name of *Soranus*. The first was an *Ephesian*, as well as the *Soranus* already mentioned, but lived a great while after him. *Suidas* also observes, that the second *Soranus* wrote several Medicinal Books, one of which was intituled, *Of the Disorders of Women*, or *The Things relating to Women*. This was published in Greek at *Paris* in 1554. with *Rufus Ephesus*, by *Turnebus*. The third *Soranus* was a Native of *Malle* in *Cilicia*, and is distinguished from the others by the Surname of *Mallotes*. *Suidas* informs us, that a Physician and Philosopher of the Name of *Asclepiodotus*, on whom he bestows a great Character, placed this *Soranus* in the first Rank among all the Physicians who came after *Hippocrates*. Some believe, that the small Latin Book, intituled *Introductio ad Medicinam*, and printed at *Basil* and *Venice*, under the Name of *Soranus* of *Ephesus*, was wrote by *Soranus Mallotes*. *Vossius* thinks, that this belongs to neither: and, indeed, his Conjecture seems to be well founded. The Author of that Work addresses himself to *Mecenas*, in the fifth Chapter, with a View to make the World believe, that he lived in the Time of that Favourite of *Augustus*; but the Imposture is too palpable not to be detected.

But it would be superfluous to spend Time in giving a fuller Account of *Soranus*, since *Cælius Aurelianus* says a great deal of his Principles and Practice.

Cælius then wrote in Latin, and was a Native of *Africa*, as appears from his Style, which has something pretty singular in it. Besides, the Place of his Birth is ascertained by the Title of his Book, where he is called *Cælius Aurelianus Siccensis*. Now *Sicca* was the Name of a City in *Numidia*. Others have called him *Lucius Cælius Ariamus*, instead of *Aurelianus*, as if he had been a Native of *Aria*, or *Ariana*, Provinces of *Asia*; but most of the Learned declare in favour of the former Name. In *Cassiodorus* we read of one *Cælius Aurelius*, who must have been the same with the Author of whom we now speak.

We know nothing certain as to the particular Time in which *Cælius Aurelianus* lived. Some think him more antient than *Galen*, because, among the several Authors whose Sentiments he relates, he makes no mention of that Physician. But *Cælius* might have lived after *Galen*, and yet not have quoted him, because he was a sworn Enemy to the Methodics. This is the Conjecture of the judicious *Reinesius*, who, from this Author's Air and manner of Writing, will have him to live in the fifth Century after Christ. Tho' *Cælius Aurelianus* confesses, that he translated *Soranus*, yet 'tis obvious, that he did not barely translate what that Physician wrote, since he often tells us, that *such a Physician was of such an Opinion; but that Soranus, whose Admirer he professes himself to be, was of a contrary Sentiment*.

Besides, what proves that *Cælius Aurelianus* was not a simple Copier of the Works of another, is his quoting several Books of his own Composure; and, among others, a Book of Greek Letters, addressed to one called *Prætextatus*, in which he strongly opposed the Use of *Hiera*, a purgative Medicine used by *Themison*. *Cælius Aurelianus* also quotes another Book, which he dedicated to one *Lucretius*, and which contained an Abridgment of Medicine, by way of Question and Answer. He also quotes his own Books upon Surgery; others concerning Fevers; the Causes of Disorders; common Remedies; the Composition of Medicines; the Diseases of Women; and the Preservation of Health. Now 'tis by no means probable, that all these Books were copied from *Soranus*. Whether it was really so or not, we have none of the Writings of *Cælius Aurelianus* now extant, except those Books, the principal Honour of which he ascribes to *Soranus*. But luckily these are of the greatest Importance, since they contain the Manner used by the Methodics in treating almost all Disorders, except such as demand the Aid of Surgery. Another Advantage we draw from them is, that our Author, in refuting the Sentiments of some celebrated antient Physicians, preserves some Specimens of their Practice; of all which we should have been entirely ignorant, except what relates to *Hippocrates*, of whom he also relates some things not to be found in his Works. The other Physicians he quotes most frequently are *Diocles*, *Praxagorus*, *Heraclides Tarentinus*, *Asclepiades*, and *Themison*. These are the Physicians whose Practice he has most carefully and accurately examined. He, indeed, joins *Erasistratus* and *Herophilus* to them; but, as these Authors did not write upon all Disorders, he does not make so frequent Mention of them as of the others. In several Passages he also quotes *Serapion*, and probably would have done so more frequently, if he had not thought, that the Works of *Heraclides* alone contained what was best in the System or Practice of the Empirics.

Cælius Aurelianus, in those Works of his which are still extant, considers Diseases either as acute or chronical; and, as this Division made one of the Relations of the Methodics, the Physicians of that Sect followed the same Distinction in the Titles of their practical Works. As the Methodic Sect took all Diseases, whether acute or chronical, to be produced by Stricture and Relaxation, from which arose a third Sort, of a mixed Nature, or partaking of both the former, we shall briefly enumerate the particular Disorders, which, according to *Cælius Aurelianus*, drew their Origins from each of these Sources.

As for the Diseases, then, produced by Stricture, and which, at the same time, are of the acute Kind, he gives the first Place to a *Phrenitis*; tho' he owns another Species of it produced by Relaxation, or Solution, and which may be distinguished from the former by the frequent Discharges by Stool and continual Sweats. The next he mentions is a Lethargy, which, according to him, proceeds from a still stronger Stricture than that which produces a *Phrenitis*. The next he mentions is a Catalepsy, which bears some Analogy to a Lethargy. From these Disorders he passes to a Pleurisy and Peripneumony, which, he says, are of the mixed Kind, and partake both of Stricture, and Solution or Relaxation; of the latter, because the Patients spit and expectorate Phlegm, and sometimes Blood; and of the former, because there is a Tumor in the Part affected, since every Tumor necessarily implies Stricture. All these Disorders are accompany'd with a Fever; but he makes others of the acute Kind exempt from that Misfortune, such as the various Sorts of Quinsys, the Apoplexy, Convulsions, the Heus, and the Hydrophobia.

Chronical Diseases, arising from Stricture, are Head-achs, Vertigoes, Asthmas, which he made to arise, in some measure, from Solution, because of the Discharge from the Lungs in this Disorder; Epilepsies, Madness, the Jaundice, Suppressions of the Hemorrhoids, and of the Menses; *Polysarcia*, or Redundance of Flesh; Melancholy, which also depends, in some measure, upon Solution or Relaxation, by reason of the frequent Vomiting

Vomitings and Diarrheas of those afflicted with it. The Palsy, Catarrhs, the Phthisis, the Colic, and the Dysentery, also partake of both Stricture and Relaxation. The Dropsy is also of the same Kind. It is generally ascribed, says *Caelius Aurelianus*, to Stricture; but the Symptoms attending it shew, that it partakes of Relaxation or Solution.

The acute Diseases, arising from Solution or Relaxation, are the *Cardiac Passion*, which is often a Symptom attending burning Fevers, a Disorder accompanied with Faintings, cold Sweats, and a very small Pulse; a *Cholera*, which *Caelius Aurelianus* defined, *Solutio Stomachi, Ventris, & Intestinorum, cum celerrimo periculo*, “a Relaxation or Solution of the Stomach, Belly, and Intestines, accompanied with most sudden Danger.”

The chronical Diseases, produced by Solution or Relaxation, are, Spitting of Blood, Diarrheas, immoderate Discharges of the Menfes, Leanness, and the Hemorrhoids.

The Signs by which the Methodics distinguish'd Diseases proceeding from Stricture, were, a Retention of the usual Evacuations, and a Tumor or Hardness of the Parts: On the contrary, Diseases caused by Relaxation or Solution were known by an Increase of the usual Evacuations, a Discharge of some Things which ought to be retain'd in the Body, and a Softness and Extenuation of the Parts. As to some Distempers, the principal Symptoms of which cannot properly be deduced either from Relaxation or Stricture; these they rank'd in that Class, to which some less considerable Circumstances, attending it, directed them to refer it.

In order to form a Judgment of the Methodic Sect, it will be necessary to take a fuller View of their Practice, the Maxims on which it was founded, and the principal Remedies which they either recommended or disapproved.

We have already observed, that they maintained, that the Relations they established between Diseases ought to be evident; and that they had as great a Regard to what was evident in Diseases, as to what they had in common among themselves. *Caelius Aurelianus* was so strong an Advocate for this Evidence, that he avoided Definitions as much as possible, for fear of involving himself in some obscure and intricate Disputes, by attempting to penetrate into the Essences of Things, which seems necessary, in order to define them exactly, according to the Rules of Logic. The same Consideration carried him farther, and made him assert, that we ought not to be at any Pains to discover the Part particularly affected, or the Part which suffers most, in every Disease. “The Physicians of other Sects, says he, *Autor. Lib. 1. Cap. 8.* have endeavoured to discover what the Part affected in a Phrensy is. Some have asserted it to be the Brain, others the Heart, or the Diaphragm; but, as for the Methodics, we do not give ourselves a great deal of Trouble about Circumstances of that Nature.”

It is however certain, that, in some Cases, the Methodics thought themselves obliged to know the precise Part affected, tho' not with a View to vary the Cure. “Which are the Parts, says *Caelius Aurelianus*, from which the Blood, discharged by the Mouth, flows? There are several of them; the superior Part of the Throat, the Aspera Arteria, the Lungs, the Breast, the Pleura, the Diaphragm, the Stomach, the Belly, and, according to some, the Liver; the Spleen, and the great Vein adhering to the *Spina Dorsi*.” After having given this Answer to the Question proposed, he starts another: “Why, says he, do we endeavour to discover the Parts whence the Blood flows in certain Diseases? Our Intention in this is, that we may apply our Remedies immediately to the Parts affected, or those adjacent to them; and not, as some imagine, with a View to vary the Cure according to the Diversity of Parts, since the same Cure is adapted to them all.”

Another Maxim of the Methodics was, “That Physicians ought to attempt the Cure of Disorders by Things as simple as possible, and such as we use in a State of Health, such as the Air we breathe, and the Aliments we take.” It is universally agreed, that this Method would be, of all others, the best, provided it answer'd the Intention; and the antient Physicians endeavoured to draw all the Advantages from these Things they possibly could. But the Methodics were, above all others, accurate and careful in this Particular; for they endeavoured, as much as they possibly could, to render the Air the Patient breathed such as they thought might contribute most effectually to the Cure of his Disorder; and as they acknowledged only two Kinds of Diseases, those proceeding from Relaxation and Stricture, their great Care was to procure to their Patients either a relaxing or a constricting Air, according as their Case call'd either for the one or the other. In order to procure the former, they lodged their Patients in light, large, and moderately warm Chambers; on the contrary, in order to obtain a constricting Air, they lodged them in Rooms somewhat dark and cool. With this View the Methodics not only chose Apartments lying to the North, and on which the Sun rarely shined, but also sometimes Grottoes, and subterraneous Places. With the same View they also covered the Floor of the Apartment with the Leaves of the Mistle-tree, the Vine, the Pomegranate-tree, the Myrtle, the Willow, and the Pine; they sprinkled the Floor also with cold Water, used Bellows and Fans, and forgot no Circumstance that could render the Air cool. “It is necessary, said they, to have a greater Regard to the Air we breathe, than to the Aliments we use; because we only eat at stated Intervals; whereas we respire continually, and the Air, entering without Interruption into the Body, and penetrating into its most minute Interstices, more powerfully contracts or relaxes than our Aliments.”

The Methodics were also very solicitous and careful about the Manner in which their Patients lay, and ordered their Beds to be prepared in a manner suited to their particular Distempers. They carefully specified what Sort of Bed cloaths they ought to be cover'd with; and determined whether they ought to lie on a Mattress, or a Down-bed, in what Posture they ought to lie, whether the Bed ought to be large or little, and how the Bed ought to stand with respect to the Windows: In a Word, they were extremely scrupulous with regard to all these Circumstances, which were almost overlook'd and disregarded by other Physicians.

As for Nourishment, the Methodics made it their principal Business to distinguish Aliments or Liquors which contracted or relax'd.

We must observe, that the Physicians of this Sect, or at least *Caelius Aurelianus* and *Serapion*, did not admit of Specifics; since, for the most part, they consist of Substances to which People in Health are not accustom'd. *Caelius Aurelianus*, *Tardar. Lib. 1. Cap. 4.* tells us, “That, in the Epilepsy, the dried Flesh of Wheatles is prescribed, or human Flesh, or a certain Excrecence which appears on the Legs of Horses, Asses, or Mules; and that Physicians exhibit to Patients, labouring under this Disorder, the Penis or Testicles of a Water-dog; Wood-lice, which are Insects produced in moist and watery Places, and by the Greeks call'd *scaber*; then Filings of Steel, and Water in which hot Iron has been extinguish'd. They also give them the Brain of a Camel, dried in the Smoke, and cut small: But this Medicine is only to be smell'd to by Children and Infants; but, by Adults, it is to be taken in three Cups of *Mulsim* and Vinegar. The Heart of a Hare also, and the Brain of a Sea-lowl call'd *Garea*, is prescribed. It cannot be said, that these Medicines were invented by Reasoning, or Attempts to penetrate into obscure and latent Causes. Neither can we say, that the Effects of these various Substances have been discover'd in the Epilepsy by Experiments accidentally made, as the Empirics “believed

“believed the greatest Part of Medicines to be. 'Tis not conceivable, how Chance should introduce these Substances into Medicine, since they are all so abominable, and opposite to those generally used, that we cannot suppose they were brought into Use without Peoples thinking on their Qualities. If we should say, that these Medicines being brought into Use is the Result of Experiments made by the first Physicians, either designedly, or from a Principle of Curiosity, we must be justly surpris'd, that these Physicians should choose to make their Experiments upon such disagreeable and nauseous Substances, and neglect to discover the great Advantages to be drawn from the Air, Watching, Sleeping, Aliments, and other things necessary to human Life; by regulating each of these, according to the particular Nature of each Disease.” *Cælius Aurelianus* adds, “That the Remedies of the former Class are dangerous, and quotes the Example of *Themistocles*, who died by drinking Bulls Blood, a Medicine also highly commended against the Epilepsy.” This Author passes the same Judgment upon all the Specifics used in other Diseases; and, in his Chapter on the *Hydrophobia*, concludes, “That those Remedies which People believe to be experienced, and, after repeated Trials, found effectual, are nevertheless good for nothing; because they are very often contrary to those prescribed by Art;” that is, some of these Remedies contract, when Relaxation ought to be the Intention; and relax, where Constriction is necessary.

This last Consideration determined the Methodics against specific Medicines, since they admitted none but such as had a Relation to Relaxation and Stricture; yet, on some Occasions, the Physicians of this Sect were obliged to have recourse to Specifics; and *Cælius Aurelianus* himself is forced to own their Effects in killing Worms. But as we have observed, that the Methodics had invented particular Relations with regard to the Diseases in which Surgery is concern'd, and as the principal of these Relations consisted in taking away or removing what was foreign to the Body, *Cælius Aurelianus* saved himself in this Particular, by ranging Worms and their Cure under this Relation; that is, he pretended, that Worms being Things foreign to the Body, there was a Necessity for using Remedies which might kill and expel them from the Body.

The Methodics were very great Enemies to Cathartics, and admitted of their Use on very few Occasions; because, says *Cælius*, they are prejudicial to the Stomach, and offensive to the Nerves; and, besides, induce a Solution, which is itself, according to their System, a Disease. Clysters, however, they allow'd, but only those of the gentle emollient Kind. This Sect does not appear to have been more favourable to Diuretics, which *Cælius Aurelianus* only allows the Use of in a Dropsy. Narcotics and Cauteries were in no greater Esteem. But what particularly distinguished the Physicians of this Sect from all others, was their *DIATRITOS*, or three Days Abstinence, with which they began the Cure of almost all Distempers. See *DIATRITOS*.

As the Methodics allow'd of only two Sorts of Distempers, one from Stricture, and one from Solution or Relaxation, more than two Sorts of Medicines would have been superfluous in their System. Accordingly we find them attached to Remedies which relax, and those which contract or brace up, without considering any farther. Amongst the relaxing Remedies, Bleeding was one of the most considerable: In consequence of this Principle, the Methodics bled in all Disorders proceeding from Stricture; and even in those of the mix'd Kind, when Stricture prevailed. They bled, for Instance, in a Pleurisy, tho' accompanied with a Diarrhœa; because they apprehended the Removal of the Stricture to be of the most Importance towards the Cure; but they generally waited till the third Day of the Distemper, before they administer'd this Remedy. They, however, blamed the other Physicians for bleeding excessively, that is, till the Patient fainted. They farther disapproved of opening the Veins under the Tongue, because they reason'd themselves into an Opinion, that it did more Injury than Good; nor were they to be convinced of their Error by Experience, persisting in their Opinion with all the usual Obstinacy of Disputants. They found Fault with those Physicians who confined Bleeding to young People; whereas we, says *Cælius Aurelianus*, bleed Patients of all Ages, when the Distemper demands this Remedy, and the Strength will permit it.

Cupping-glasses, both with and without Scarification, were employ'd by the Methodics, with a View of relaxing; as likewise Leeches. The rest of their Practice, with a View to Relaxation, consisted in Fomentations made with Sponges soak'd in warm Water, the external Application of warm Oils, and emollient Cataplasms, and the Regulation of the Non-naturals.

For constricting or bracing the Habit, they principally employ'd cold and restringent Topics, always taking care to make the Air, Exercise, and Aliment, as much as was possible, subservient to their Intention.

Those who are desirous of farther Information concerning the Methodic Sect, may read *Cælius Aurelianus*, or *Prosper Alpinus de Medicina Methodica*.

The Physicians of the Dogmatic Sect, in disputing against the Methodics, asserted, That it was not possible for the antient Physicians to be ignorant of what Diseases have in common with each other; but that, on the contrary, they carefully attended to them. Thus *Hippocrates* says expressly, “That, in order to cure Diseases, a Physician must have a Regard to what belongs to them in common, as well as to what is peculiar to each Disease.” The Methodics, whatever they pretend, cannot help observing very essential Differences between Particulars of the several Genera of Diseases which they have established, and these Differences must make new Genera. Thus, for Instance, it is one thing to vomit Blood, and another to vomit Bile; and there is a vast Difference between a Diarrhœa and a Dysentery; between an Evacuation or Diminution of what is superfluous by way of Sweating in a State of Health, and an Emaciation which is the Effect of a slow Fever, which consumes the Body.

These Physicians assert also, that the different Parts which are affected by the same Distemper, occasion a Difference no less considerable than the former. The Eye and the Ear require different Treatment under the same Distemper; and there is scarce a Part of the Body which does not require a particular Management. Oil, for Example, (*Galen de Seltis, Cap. 8.*) which mitigates and mollifies inflammatory Tumors in all other Parts, causes an intolerable Pain in those of the Eyes, and increases the Disorder instead of diminishing it. *Galen*, in particular, urges very strongly against the Methodics, that they were so far from searching into the secret Causes of Diseases, that they even neglected the outward and evident Causes, upon a Persuasion, that it is not the Cause of the Disease which indicates the Remedy, but the Disease itself. To convince them of the contrary, he brings an Example of two Men, who, being bit at the same time by a mad Dog, address'd themselves to two different Physicians. It happened, that one of these Physicians, being informed of the outward Cause of the Disease, left the Wound a long time open, and applied Specifics. The other, without troubling himself about the Cause, regarded only the Disease, which was a Wound, and, following the common Indication of Wounds, endeavour'd to cicatrize it as soon as possible; the Consequence of which was, that his Patient died mad; whereas the other recover'd. *Galen* is no less severe upon them for their having no regard to the Season, nor Country, nor Age, nor other Circumstances of the Diseased.

The Methodics answer'd, That these Circumstances made no Alteration in their Method; that whenever there is a Relaxation, there is need of a Restriction, let the Country, Season, Age, or even Part affected; be what it will.

By all that has been said of the Methodics, it evidently appears, that these Physicians, like those of all other Sects, were more solicitous about establishing the Credit of their Theory, than relieving the Sick; and that they disputed for Victory, and not for Information. The Moderns have, however, found some Things, both in the Theory and Practice of these Physicians, highly worthy of being imitated in their own. Thus the Doctrine of Distempers which proceed from the Rigidity or Relaxation of the Fibres, and the Practice depending thereon, exactly agrees with those of the Methodics. These, as I remember, were first revived by *Prosper Alpinus*: *Baglivi* afterwards wrote upon this Subject; and the celebrated *Boerhaave* gives a succinct and rational Account of every thing relating to this Doctrine, with some Improvements, in nine Pages only of his *Aphorisms*; tho', since the Publication of this Work in 1709. a Multitude of Authors have borrow'd his Plan, and spun out his Sentiments to a great Number of Volumes.

The Names of many other Physicians of the Methodic Sect are recorded by Authors, but few of them are of Importance enough in the History of Physic, to deserve farther Notice, as being principally servile Imitators of those already mentioned. Amongst these, however, Mr. *Le Clerc* takes Notice of *Moschoni*, whose Treatise of the Disorders of Women we now have; and of *Vindicianus*, who lived in the Time of the Emperor *Valentinianus*, and whom St. *Augustine* represents as the greatest Physician of his Age.

Theodorus Priscianus is also rank'd amongst the Methodics by the same Author, who says, he was Scholar to *Vindicianus*. He first wrote some Medicinal Books in the Greek Language, by the Persuasion of one of his Colleagues, whom he calls *Olympius*; after which he wrote those four still extant in *Latin*, as he himself informs us. The first of these is intitled *Logicus*, tho' there is not the least Appearance of Philosophical Reasoning in any Part of the Work. On the contrary, the Author in his Preface declaims against philosophical or reasoning Physicians. "If, says he, Medicine was practised by illiterate Men, who had no other Master than Nature, and who knew nothing of Philosophy, Diseases would be more slight and gentle, and Physicians would use milder and cheaper Remedies than those commonly prescrib'd. But, continues he, the most natural Method of treating Medicine has been neglected, and that Art lies exposed to the Mercy of certain People, whose chief Talent consists in writing politely, and disputing subtilely against those of Sentiments different from their own." All the rest of this Preface is full of Exclamations against this Abuse, and the Author declares himself so strongly for the Empirics, that one would very readily take him for one of their Sect. 'Tis no easy Task to conjecture, why this Book in the Edition of *Aldus* should be intitled *Logicus*, since in the *Basil* Edition the same Book is called *Euporiston*, that is, *Remedies easily prepar'd or found*. He dedicated this Book to his Brother *Timotheus*. He also dedicates the second to him, in which he treats of acute and chronic Diseases. This second Book is intitled *Logicus* in the last-mention'd Edition; and that Title appears well enough suited to it, because it contains Reasonings. The third relates to the Disorders of Women, for which Reason it is intitled *Gynæcia*. It is dedicated to a Woman, who in different Editions goes by different Names. That of *Aldus*, and that of *Strasburg*, call her *Victoria*, but that of *Basil* styles her *Salvina*. The fourth Book, intitled *De Physica Scientia*, is by the Author addressed to his own Son of the Name of *Eusebius*. The Beginning of this Book does not correspond to its Title, since it does not in the least treat of Physic; for we only find in it Descriptions of Medicines for various Diseases, or specific and empirical Medicines, some of which are sufficiently superstitious. Towards the Close of the Work, indeed, there are some Questions relating to Physiology. The Author there examines the Nature of the feminal Matter, that of some Parts of the Body, and some of the animal Functions, but all in a very barbarous manner.

Besides, it appears by the second of these Books, that the Author was of the Methodic Sect, in Imitation of whom he always begins his Cures by the Choice of a Chamber suited to the Nature of the Disease of which he treats; and that with respect to Relaxation and Stricture. In a Peripneumony, for Instance, which is a Disease proceeding from Stricture, he orders that the Chamber should be light and warm, because, he says, these Circumstances contribute to Relaxation. He also makes frequent Mention of the *Cyclos* of the Methodics, and orders Venesection almost in the same manner they do, during the first three Days of the Disease; tho' he is sometimes afraid of Venesection, either because he thinks it may be omitted, or that some other Remedy may be substituted in its Room, in Cases where 'tis generally believ'd to be indispensably necessary. But tho' our Author is of the Methodic Sect, he nevertheless recedes in several Instances from the Practice of the most antient Physicians of that Sect. He often orders Purgatives, which the Methodics did not admit of; he also speaks of Specifics, and with respect to the Administration of other Remedies does not follow the precise Order adher'd to by *Soranus*. But this will not appear extraordinary, if we consider, that *Theodorus Priscianus* liv'd about three hundred Years after him, and that, even in the Days of *Soranus* himself, the Methodics were not all of the same way of Thinking; so that if, at the first Establishment of this Sect, the Physicians who embrac'd it could not agree with respect to several Articles, it was no Wonder, if those who came three or four Centuries after them, should in like manner be divided with respect to some Particulars. Tho' these later Methodics differ'd from the former, this does not hinder them from being look'd upon as Methodics, since they did not abandon the fundamental Principle of the Sect, which consisted in acknowledging only two Kinds of Diseases, those proceeding from Stricture, and those from Relaxation.

Our asserting that *Theodorus Priscianus* liv'd about three hundred Years after *Soranus*, who flourish'd under *Trajan*, is founded on what the former says of himself; That he was the Disciple of *Vindicianus*, who was Physician to the Emperor *Valentinian* the first. According to this Computation, *Theodorus Priscianus* must have liv'd under *Gratian* and *Valentinian* the second, and even somewhat later. His Style in some measure resembles that of *Celius Aurelianus*, which lays a Foundation for suspecting, that he was an *African*, as well as that Author. The Works of *Theodorus Priscianus* were first printed at *Strasburg* in 1532. but in that Edition he receives the Name of *Octavius Horatianus*, and the Title of *Archiater*. This Edition is full of Faults, as *Reinesius* has observ'd, who in his Prelections has explain'd several Passages of our Author. The same Year there was another Edition publish'd at *Basil* under the Name of *Theodorus Priscianus*, but in this Edition the fourth Book is wanting. *Aldus*, or his Sons, at last gave a third in the Year 1547. where the Works of our Author, who there also appears under the Name of *Theodorus Priscianus*, are join'd to those of all the antient Physicians who wrote in *Latin*. *Theodorus Priscianus* does not in this Edition, as in the other, assume the Title of *Archiater*. The third Book of this Author, which treats of the Diseases of Women, is contain'd in a Collection of Works relating to the same Subject, publish'd by *Israel Spachius*. There is also a Book intitled

Diæta,

Dieta, wrote by an antient Physician of the Name of *Theodorus*, whom *Reinesius* thinks to be the same with *Theodorus Priscianus*.

These are all the antient Methodics, whose Works or Names are still preserv'd. From the Days of *Theodorus Priscianus*, or those of *Olympius*, *Timotheus*, and *Eusebius*, to whom he dedicates his Books, and who were probably of his Sect, we hear no more of the Methodic Sect till the Time of *Gariopontus*, who did not write till about seven or eight hundred Years after the Persons now mention'd. Some call him *Warimpotus*, others *Raimpotus*, *Warmipotus*, *Guripotus*, or *Gurimpotus*, *Guriponus*, and *Garnipulus*. The particular Time, in which this Author lived, is much controverted; but it appears from the Testimony of *Petrus Damiani*, who died in the Year one thousand and seventy-two, that this Physician lived in the same Age; for he speaks of him, as of a Man whom he had seen. Besides, it appears that our Author was among the Number of Physicians belonging to the School of *Salernum*, from a Passage in *Moreau's Prolegom. in Scholam Salernitanam*, where he is called *Warmipotus*. He wrote seven Books, which contain his Practice. The five first treat of almost all Disorders except Fevers, which are the Subject of the two last. This Work was printed at *Lyons* in 1516. and 1526. under the Title of *Passionarius Galeni*.

After *Gariopontus* we know of no other Authors of the Methodic Sect, which from that time seems to have been entirely extinct, till towards the End of the sixteenth Century, or rather the Beginning of the seventeenth. *Prosper Alpinus*, Professor of Medicine at *Padua*, endeavour'd to revive it by his Book intituled, *De Medicina Methodica*.

Though *Themison* had at first a great Number of Disciples, and the Methodic Sect had been a long time established, yet there were several of *Themison's* Contemporaries; and some who lived soon after him, who did not declare themselves of his Sect. Some would not forsake the Dogmatics, but adher'd to *Hippocrates*, *Herophilus*, *Erasistratus*, or *Asclepiades*; others always profess'd themselves Empirics. The Methodics themselves, who were not all agreed, gave Occasion for introducing several new Systems; for out of their Sect arose two others, under the Titles of *Episynthetics* and *Eclectics*. Thus much at least, it seems, we may collect from the Author of the Book intituled, *The Introduction*, ascribed to *Galen*. That Author, *Cap. 4.* having observed, that several Methodics, as *Olympicus*, *Menemachus*, and *Soranus*, did not wholly agree in Opinions with the rest, goes on to inform us, that some were called *Episynthetics*, as *Leonidas* of *Alexandria*; others *Eclectics*, as *Archigenes* of *Apamea* in *Syria*. Here the Author seems to comprehend these *Episynthetics* and *Eclectics* under the Methodics.

Celsus Aurelianus, *Acut. Lib. 2. Cap. 1.* quotes *Leonidas* the *Episynthetic*, where he gives us his Definition of a Lethargy; but that Definition does not in the least discover the Sentiments of that Physician, with regard to his Sect. *Aetius* also, *Tetrab. 4. Serm. 3. Cap. 5, 6, 7, 8.* mentions some practical Treatises of one *Leonidas*, who perhaps might be the same; but we are never the wiser for them, as to the knowing any thing concerning his general System. The Name *Episynthetic* being taken from a Greek Word, which signifies *to collect* or *assemble*, it is possible, that *Leonidas*, and those of his Party, might profess to join the Maxims of the Methodics with those of the Empirics and Dogmatics, and to unite or reconcile the different Sects one with another. This is all we have to say concerning this Matter; for we know not even the Time when *Leonidas* lived, tho' probably it was some time before *Soranus* before-mentioned.

As for those whom *Galen*, or the Author of the Book before quoted, calls *ἐκλεκτοί*, *elect* or *chosen*, of whom *Archigenes* was one, I believe there may possibly be a Fault in the original Text, where *ἐκλεκτοί* is read instead of *ἐκλεκτικοί*. What confirms this is, that, fifty or sixty Years before *Archigenes* appeared, there was a Philosopher of *Alexandria*, called *Potamon* by *Diogenes Laertius*, and who lived under the Emperors *Augustus* and *Tiberius*, and was the Founder of a Sect of Philosophers called *Eclectic*, *ἐκλεκτικοί*, who made Profession of chusing or selecting out of all others whatever was best; whence those of that Sect ought rather to be called *ἐκλεκτικοί*, or *ἐκλέγοντες*, "chusing," than *ἐκλεκτοί*, "chosen." Now what *Potamon* had done with respect to Philosophy, *Archigenes* might very well be supposed to do afterwards with regard to Medicine. What farther relates to *Archigenes*, is specified under the Article of his Name.

I have given an Account of the Pneumatic Sect, which probably arose about this Time, under the Articles of *ARETÆUS* and *ATHENÆUS*.

Tho' *Celsus* was the Founder of no particular Sect, yet as he wrote judiciously on Medicinal Subjects, and with great Purity of Style, he deserves our Attention on the present Occasion.

Some Authors affirm, that *Celsus* lived under *Augustus*; others make him live under *Tiberius*, others under *Caligula*; some will have him cotemporary with *Nero*, and others place him in the Reign of *Trajan*; but most agree, that he lived under *Tiberius*; and it is probable, that he was born under *Augustus*, but did not write till the Beginning of the Reign of *Tiberius*, which it seems reasonable to conclude from this. *Columella*, who lived in the Time of *Claudius*, speaks of *Celsus* as an Author who wrote before him, but as one whom he might have seen. "*Cornelius Celsus*," says he, "in our Times, has, in five Books, comprehended the whole Body of Arts and Sciences." *De Re Rustica, Lib. 1. Cap. 1.* And again, *Lib. 3. Cap. 17.* "*Julius Atticus*, and *Cornelius Celsus*, two very celebrated Writers of our Age." We may draw another Proof of the Time when *Celsus* lived, from the Manner in which he speaks of *Themison*: "*Themison*, says *Celsus, Præfat. Lib. 1.* one of the Successors of *Asclepiades*, lately, when he grew old, deviated in some Things from the Opinions and Practice of his Master." The Word *lately* imports, that *Themison* did not live long before *Celsus*.

Now *Themison*, having been a Disciple and Successor of *Asclepiades*, must have lived forty Years before the Birth of *Christ*, and, dying old, as we learn from *Celsus*, might be alive some Years after it. This being supposed, we shall find, that he was still living twelve or thirteen Years before the End of the Reign of *Augustus*, which extended to the fifteenth Year after *Christ*; and consequently that *Celsus* having wrote but a short time after the Death of that Physician, it must be about the End of the Reign of *Augustus*, or, at latest, at the Beginning of the Reign of *Tiberius*.

We meet with some Difficulties too concerning the Name, Country, and Profession of *Celsus*. Most Editions of his Works give him the Prænomen of *Aurelius*, because all the manuscript Copies have the following Title: *A. Cornelii Celsi Artium Liber VI.* There is but one Edition, which is that of *Aldus Minutius*, that changes *Aurelius* for *Aulus*, and perhaps with some Reason, because the Prænomen *Aurelius* being taken from the *Aurelian* Family, and *Cornelius* from the *Cornelian* Family, do not seem capable of being joined together, because we have no Example of such a Conjunction of Names of different Families.

As to the Country of *Celsus*, it is believed, upon the Credit of some Editions, the Titles of which make him a Roman, that he was born at *Rome*. Others, as *Cæl. Rhodigin. Lib. 14. Cap. 5.* will have him to be of *Verona*, for which

which they also have no other Foundation than some Titles of his Books, which are not more to be depended upon than the others.

The Profession of this Author is no less hard to be determined. Several of the Learned have believed, that he was no Physician, and that the Works which pass under his Name are nothing but a Translation of some *Greek* Author. This they infer from a Letter ascribed to *Celsus*, addressed to *Publius Nafalis*, and in which the Author does not lay Claim to the Character of a Physician, but only speaks of his Translation. But, besides that this Letter does not mention the Books of *Celsus* now extant, it is not wrote in his Style.

Others are of Opinion, that *Celsus* did not study Medicine, except as a Branch of Philosophy, not with a View to practise it, but to imitate *Democritus*, *Plato*, and other eminent Men, who endeavoured to make themselves acquainted with every thing relating to Physic. What seems to favour this Sentiment is, that *Celsus* wrote not only concerning Medicine, but almost all the other liberal Arts, as the Title of one of his Books evidences, and as *Quintilian* expressly observes. “*Celsus*, says he, who was a Man of a moderate Genius, wrote not only concerning all the Arts, such as Rhetoric and the Art of Poetry, but has also left us Precepts relating to the Military Art, Agriculture, and Medicine.” But the strongest Proof, that *Celsus* was no professed Physician, is, that *Pliny*, who gives a List of all the Authors from whom he takes his History, and carefully separates the *Greeks* from the *Latins*, the Physicians from those that were not so, places him always among the latter.

Scaliger, however, with several other learned Men, thinks that *Celsus* was a real Physician, and oppose the Authority of *Galen* to that of *Pliny*; the first of whom quotes a *Cornelius*, whom he calls *Cornelius the Physician*, and who is supposed to be the same with our *Cornelius*. It may be added, that *Pliny* himself, in one Passage, *Lib. 20. Cap. 4.* quotes *Celsus* as the Author of a certain Medicine. “*Celsus*, says he, advises the Application of the Root of Marshmallows to the Gout unattended with a Tumor.” The very same Prescription is found in *Celsus*; so that we cannot doubt but that he is the same as that *Celsus* quoted by *Pliny*. Besides, it is observable, that *Celsus* never hesitates to pass his Judgment upon every thing which regards the Theory, as well as the Practice of Medicine, and that he decides boldly, and as a Master, in the most difficult Questions relating to the Art; which it is very likely he would not have presumed to do, had he not been a Physician: He even, in some Places, speaks from his own proper Experience in Medicinal Cases; as in the Chapter where he treats of a Disease of the Eye-lids, called *Ancyloblepharon*. Here, after he has related, from several Authors, the manner of curing it, he adds, that he did not remember to have seen any one cured by this Method.

Among all the Works of *Celsus*, we have none but those relating to Medicine remaining, except some few Fragments of his Rhetoric.

All the Medicine of *Celsus* is contained in eight Books, the four first of which treat of internal Diseases, or such as are principally cured by Diet; the fifth and sixth relate to external Disorders, and contain several Formulas of Medicines, both for external and internal Use; the seventh and eighth comprehend those Disorders in which Surgery is necessary.

Hippocrates and *Asclepiades* are the two principal Authors to whom *Celsus* has been indebted; tho’ he also takes some things from his Contemporaries. The former of these Authors he has followed with respect to Prognostics, and the various Operations of Surgery; for, upon these Subjects, he has literally translated a great many Passages of *Hippocrates*, for which Reason he is styl’d the *Latin Hippocrates*. But, for the other Parts of Medicine, he seems to have been much more attach’d to *Asclepiades*, whom he calls a good Author, and from whom, he owns, he has taken several things. This Circumstance has laid a Foundation for *Celsus* being placed, by some, among the Physicians of the Methodic Sect. But tho’ we did not perceive, from the Manner in which he speaks of the three principal Sects then establish’d, that he is not attached to any of them in particular, yet we need only compare his Practice with that of the Methodics, in order to be convinced, that he does not agree with them, at least in every respect. If there is any kind of Analogy between his Manner of treating Diseases, and that of the Methodics, ’tis because their Principles are drawn from those of *Asclepiades*, who, as we have observ’d, was a favourite Author of *Celsus*, tho’ he sometimes rectifies his Mistakes. If *Celsus* was not of the Eclectic Sect, yet ’tis certain he acted according to the Principles insinuated by that Name, since he chose, from every Sect, and every Author, what to him appeared best and most rational. But, as his Practice very much resembles that of *Asclepiades*, from which the Practice of the Methodics was borrow’d, this obliges us to put him, as it were, in the Rear of these Sectaries, that, with him, we may finish what concerns their Sentiments, or seems to have any Relation to them.

By what follows we shall see the Particulars in which *Celsus* receded from *Hippocrates*, in order to conform himself to the Sentiments of *Asclepiades*, and in what Instances he receded from them both. With *Asclepiades*, then, he laugh’d at the critical Days of *Hippocrates*, and imputed the Invention of them to a foolish and superstitious Attachment to the *Pythagorean* Numbers. He also rejected the Practice of *Hippocrates* with regard to Venesection, of which, in every respect, he made a more universal Use. “It is not,” said *Celsus*, “a new thing to take Blood from the Veins; but ’tis a new Piece of Practice, that Physicians should, almost in every Disorder, prescribe Venesection. Formerly young Men only, and Women who were not with Child, were blooded; but, till our own Days, we have not heard of Venesection prescribed for Children, Women with Child, and old Men. The Antients,” continues he, “believed that Infancy and old Age could not support this Remedy, and that a pregnant Woman could not fail to sustain an Injury by it. But Use and Experience have since convinced us, that, with respect to Venesection, we ought not always to follow the Practice of the Antients, but to be guided by other Observations than theirs. It is of Importance to know, not how old the Patient is, or whether a Woman is pregnant, but the Degrees of Strength left either with the one or the other. If a young Man is too weak, or a pregnant Woman brought too low, Venesection is then improper, because it would render them still weaker; but a vigorous Child, a robust old Man, or a strong pregnant Woman, support this Operation without any Danger.”

These following are the particular Cases in which *Celsus* esteemed Venesection necessary: When Patients labour’d under violent Fevers, when the Body was red, or when the Veins were full, he blooded. He also followed the same Practice in Pleurisies, especially when the Disorder was in its Infancy, and the Pain considerable. With respect to the Peripneumony, he ordered Venesection, if the Patient had sufficient Strength left; but if not, he said we were to have recourse to Cupping without Scarification. By this we see, that, in this respect, he was pretty much of the same Sentiment with *Asclepiades*; and that if, in Cases of this Nature, he did not absolutely condemn Venesection, yet, at least, he did not very much approve of it. *Celsus* also bled in other Diseases of the Viscera, and practised the same Remedy in Palsies, Convulsions, Difficulties of Breathing which threaten Suffocation, Privation of Voice, and Apoplexies, with respect to which he remarks, that Venesection sometimes relieves, and sometimes kills the Patient. In Cases of intolerable Pains, our Author also had recourse to this Remedy,

Remedy, which he practised in Ruptures, internal Contusions, and in Cases where the Patients spit or vomited Blood, on which Occasions he recommended repeated Venesections. In a Word, he bled in all acute Disorders, where he thought there was a Redundance of Blood. He also ordered this Remedy in Cachexies, no doubt because he thought, that in this Disorder the Veins were full of Blood. By these Instances we see, that he recommended Venesection more frequently than *Asclepiades*.

As for the Time most proper for Venesection, *Celsus* said it was not to be performed so long as Crudity and Indigestion prevail; and, with this View, he generally waited till the second or third Day, except when the Case was highly urgent; but he discarded Venesection after the fourth Day, because, by that time, he supposed the bad Blood either to be dissipated spontaneously, or to have made an Impression upon the Parts, and that in this Case Venesection could only weaken the Patient. He thought it was murdering a Patient to bleed him during a Paroxysm of a Fever. When the Blood flowing from the Vein was beautiful and red, he was for closing the Orifice directly; since, according to him, Venesection was, in that Case, more prejudicial than salutary. He also ordered Venesection to be performed at two different Times, rather than to take away as much at once as should be judged necessary, so far was he from bleeding till the Patient fainted away.

Tho' Cupping-glasses, for the Extraction of Blood, were used in the Days of *Hippocrates*, yet they were much more frequently used in the Time of *Celsus*. This Author, *Lib. 2. Cap. 14.* informs us, that there were two Kinds of Machines for Cupping, one of Leather, close at the Top, in which they burned Lint, in order to make it adhere to the Part. The other was of Horn, and open at both Ends. The Method of making this Kind adhere was, by extracting the Air with the Mouth from the superior Orifice, which was afterwards to be closed with Wax.

'Tis pretty surprising, that *Celsus*, who appears to be highly exact, should say nothing about the other Method of Bleeding used by the Physicians, which is the Application of Leeches. This Practice was, however, in Use before his Days; for 'tis obvious, that *Themison* was no Stranger to this Method.

If *Celsus* receded from *Hippocrates* with respect to Venesection, he no less dissented from him with regard to Purging. Concerning this last Remedy he speaks thus, *Lib. 2. Cap. 12.* "The Antients," says he, "continually purged, and gave Clysters, almost in all Disorders. When they intended to purge, they took Black Hellebore, or Polypody, or the Squamæ Æris, or the Sea-lettice, a Drop of which, mixed up with Bread, purges copiously, or the Milk of an Ass, a Cow, or a Goat, in which they put Salt, and, after having boiled it, and separated what was curdled, they made their Patients drink the Remainder. Purgative Medicines," continues he, "prove offensive to the Stomach, for which Reason 'tis necessary to join Aloes to all Purgatives. The Belly being put into too strong Commotions by Purgatives, or too much relaxed by Clysters, the Patient is, of course, rendered weaker; for which Reason neither of these Remedies is proper in Disorders accompanied with a Fever. Black Hellebore may be exhibited to the Atrabilarious, to such as are melancholy mad, or to such as are in any Parts paralytic. But, in Fevers, 'tis better, and more adviseable, to give such Liquors and Aliments, as may at once nourish and keep the Belly open."

What we have hitherto advanced concerning the Sentiments and Practice of *Celsus*, is taken principally from his four first Books, in which also we find the Manner of using Gestation and Friction, which he employed almost for the same Purposes as *Asclepiades* did.

As for his Rules relating to Eating and Drinking, they may be reduced to the following: In the Beginning of Disorders the Patients must endure Hunger and Thirst, but they are afterwards to be nourished with good Aliments; but they are not to take too much, nor to fill themselves all of a sudden, after having fasted. He does not, however, specify how long the Patient ought to practise Abstinence, but asserts, that, in this Particular, 'tis necessary to have a Regard to the Disease, the Patient, the Season, the Climate, and other Circumstances of a like Nature, since it is impossible to lay down any fixed and stated Rule. *Celsus* also, in his four first Books, treats of Baths, Fomentations, the Means of exciting a Diaphoresis, and the various Substances used as Aliments, which he distinguishes by their respective Qualities.

The fifth and sixth Books of *Celsus* relate to Pharmacy; tho' we find very few Medicines for internal Use in them. All we meet with, of this kind, may be reduced to two or three Medicines to procure Sleep, to mitigate Pain, to remove the Cough and the Colic, to provoke Urine, and facilitate Labour. There are also, in these Books, three universal Antidotes. The first of these has no particular Name; the second is call'd *Ambrosia*, which, according to *Celsus*, was the Invention of *Zopyrus*, Physician to one of the *Ptolemies*; and the third is the Antidote of *Mitridates*. We there also find some particular Antidotes against the Wounds of venomous Animals, and certain sorts of Poisons. But, in these Books, we have a sufficient Number of Medicines for external Use; some to stop Hemorrhages, others to consolidate, others to dissipate or discuss an Humour, others to bring Abscesses to a Suppuration, others to deterge Ulcers, others to consume fungous or superfluous Flesh, others to cauterize, others to incarn, and others to cicatrize; and all these Intentions are answered by means of various Plaisters, Ointments, Cataplasms, Malagmas, Powders, and Troches.

The seventh and eighth Book relate entirely to Surgery, the last of which treats of the Bones, Fractures, and Luxations. In his Preface to the first of these he makes the following Remarks.

There is a third Part of Medicine, as I before took Notice, which is known by every one to cure by manual Operation; not that it neglects a due Care of Diet and proper Medicines, but because its Performances principally depend upon the Hand; and its Effects are more evident than those of any other Part of Medicine. For, since Fortune has a great Share in the Event of Diseases, and the same Remedies prove sometimes beneficial, sometimes ineffectual, it may reasonably be doubted whether the Recovery of the Patient be owing to the Medicines administered by the Physician, or to the Strength of the Constitution. And even in those Distempers where we make the greatest Use of Remedies, and with the most sensible Effect, it is well known, that we often seek Relief in vain from Medicine, and that Health is frequently restored without it. The Eyes, for Example, after they have been for a long time tortured, and tampered with by the Physician, being left to themselves, have sometimes recovered spontaneously. But in that Part of Medicine which cures by the Hand, it is evident, that, tho' it receives some Assistance from the other Parts, we are obliged for every good Event principally to itself.

Surgery is the most ancient Branch of Medicine, and is, besides, more cultivated by that Father of all Physicians, *Hippocrates*, than it was by his Predecessors. Afterwards, when it came to be separated from the other Branches, and made a distinct Profession, it flourished also in *Egypt*, principally thro' the Skill and Industry of *Philoxenus*, who wrote an elaborate Treatise of Surgery, which contains several Volumes. *Gorgias* also, and *Sofratus*, the two *Heros*, with the two *Apollonii*, *Ammonius* the *Alexandrian*, and many other famous Men, made each of them some Discoveries tending to the Improvement of the Art. There were not wanting some eminent Professors at *Rome* too; and particularly, of late, *Tryphon* the Father, *Euclippus* the Son of *Phleges*, and the most learned of all

all these, as appears by his Writings, *Meges*, who, making some Alterations for the better, contributed each of them something towards the Promotion of this Branch of Medicine.

A Surgeon ought to be a young Man, or, at least, but just past his Youth, of a strong and steady Hand, which never shakes, and one who can use his Left Hand as well as his Right: He must have a sharp and clear Sight, be of an undaunted Courage, and not too compassionate, that he may perform his Duty without Concern, and without being moved by the Complaints of his Patients so much as to hurry an Operation, or to cut less than the Case requires; always behaving as if he was unaffected with the Suffering of the Person under his Hands.

We must not forget to observe, that *Celsus* looked upon the several Signs drawn from the Pulse, as very precarious and uncertain. “For,” says he, “some lay great Stress on the Beating of the Veins or Arteries, which is a deceitful Circumstance, since that Beating is slow or quick, and varies very much, according to the Age, the Sex, and the Constitution of the Patient. It even sometimes happens,” continues he, “that the Pulse is weak and languid when the Stomach is disordered, or in the Beginning of a Fever, tho’, in other respects, the Body be in a good State; so that we might, in this latter Case, be induced to believe, that a Man is very weak, when he is just entering into a violent Paroxysm, has Strength enough left, and may be easily recovered from it. On the contrary, the Pulse is often high, and in a violent Commotion, when one has been exposed to the Sun, or comes out of a Bath, or from using Exercise; when one is under the Influence of Anger, Fear, or any other Passion. Besides, the Pulse is easily changed by the Arrival of the Physician, in consequence of the Patient’s Anxiety to know the Judgment the Physician will pass upon his State. To prevent a Change of this kind, the Physician must not feel the Patient’s Pulse on his first Arrival: He must first sit down by him, assume a cheerful Air, inform himself of his Condition, and, if he is under any Dread, endeavour to remove it by encouraging Discourse, after which he may examine the Beating of the Artery. This, nevertheless, does not hinder us from concluding, that, if the Sight of the Physician alone can produce so remarkable a Change in the Pulse, there may also be a thousand other Causes capable of producing the same Effect.”

This Author was not only highly esteemed in his own, but in all succeeding Ages. *Columella*, who was almost his Contemporary, or appeared very soon after him, places him among the most famous Authors of his Time, and *Pliny* classifies him among those from whom he has extracted his Natural History. *Celsus* is also quoted in several Passages of *Quintilian*, especially with respect to Rhetoric; and tho’ these Quotations seem to be little to the Honour of *Celsus*, since they are only made with a View to be confuted, yet they, at least, prove, that *Celsus* was looked upon as a great Master of that Art, since so celebrated a Rhetorician as *Quintilian* thought it worth while to animadvert upon him.

It will possibly be said, that if *Quintilian* had bore any Esteem for *Celsus*, he would not in plain Terms have call’d him an indifferent or middle-siz’d Genius. But we must observe, that he only calls him so, when the Comparison is made between him and *Homer*, *Plato*, *Aristotle*, *Cato*, *Varro*, and *Cicero*, the greatest Men that have ever appeared either among the *Greeks* or *Romans*; so that the running the Parallel between them is a Circumstance which reflects Honour on *Celsus*, however indifferent his Genius is said to be in comparison of theirs. If he has not come altogether up to the greatest Authors who wrote on the liberal Arts before him, yet ’tis still something glorious to have come near them; and we may justly apply to him what *Quintilian* says a little afterwards: *Verum etiam si quis summa desperet, tamen est, ut Cicero ait, pulcrum in secundis tertiisque consistere.* “Tho’ a Person may, perhaps, despair of a Place in the first Rank, it is, however, glorious, as *Cicero* says, to equal those of the second or third Class.” What ought to augment our Esteem of *Celsus* is, that he treated of all the Arts before-mentioned, and had Courage enough singly to undertake a Task, which, divided among several Persons, would have lain very heavy upon every one of them. This Undertaking of his appeared so brave to *Quintilian*, that he could not forbear saying, that our Author deserves, that we should believe he knew all that ought to be known of the various Subjects he treats of, if it were for no other Reason, but because he had the Boldness to form a Design of writing upon so many different Matters. *Dignus, vel ipso proposito, ut illum scisse omnia illa credamus.*

There is an old *Latin* Epigram still extant, in which *Celsus* is introduced speaking after the following Manner:

*Distantes medici quandoque & Apollinis artes,
Musas Romano jussimus ore loqui:
Nec minus est nobis per pauca volumina fama,
Quam quos nulla satis bibliotheca capit.*

That is, “In dictating the Art of *Apollo* the Physician, I obliged the Muses to speak *Latin*; and I have acquired as much Fame by my few Volumes, as those who have filled whole Libraries with their Compositions.” This Epigram does not seem to be entire. The Words *quandoque &*, with which it begins, shew it to be a Continuation of some preceding Discourse, which, perhaps, was an Elogy on those other Works of *Celsus* which do not concern Medicine.

Among modern Authors, who have spoke in Commendation of *Celsus*, is that celebrated Professor in Physic and Surgery, *Fabricius ab Aquapendente*, who, in his *Chirurg. Dentium*, thus advises his Scholars: “*Celsus*,” says he, “is admirable upon all Accounts, and ought to be your Study Night and Day.” Others seem to esteem him only for his Latinity, and set a greater Value on his fine Language, than his Medicine. Those who form that Judgment of him, give no other Reason for it, but that, in their Opinion, our Author was too much attached to *Asclepiades*.

But it is unaccountable, that *Salmasius*, who was no Physician, tho’ otherwise a very learned Man, should take such excessive Liberty as to speak of *Celsus* as a Person wholly ignorant of Medicine. The Foundation on which he grounded this Censure was, that our Author, in his Opinion, did not rightly translate some Passages of *Hippocrates*, which he seems to have copy’d. This is to suppose, that *Celsus* could have no other Originals of *Hippocrates* than what are now extant; and that he was not at Liberty to add or diminish, in any thing which he took from *Hippocrates*; tho’ he translates him without naming him, and generally delivers what he says as his own Sentiments. But supposing that *Celsus* had been mistaken in some Passages, for want of well understanding the *Greek*, which might happen, must it thence follow, that he understood nothing at all of Medicine? It is true, he was a Follower of *Asclepiades* in particular, as has been observed; but was not *Asclepiades* an excellent Author for the Time in which he lived? And will it follow, that, because *Asclepiades* and *Celsus* had different Sentiments from those of *Galen*, for Example, or our modern Physicians, that therefore he must be denied to have understood Physic?

We shall put an End to what relates to the Medicine of *Celsus*, by giving a Translation of his justly celebrated Advice with respect to the Preservation of Health. “A Man,” says he, “who is blessed with good Health, and has the Fortune to be at his own Disposal, should confine himself to no particular Rules, either with respect to Regimen or Physic. He must diversify and change his Method of Life; sometimes reside in the Country, and sometimes in Town; but most frequently in the Country: He must sail, go a hunting, sometimes indulge himself in Rest, but more frequently employ himself in suitable Exercise; for too much Indolence weakens and enervates the Body, whereas by Labour it is strengthen’d and invigorated. The former hastens on old Age, but the latter preserves Youth and Vigour for a long time. ’Tis also proper sometimes to use the hot, and sometimes the cold Bath; sometimes to anoint, and sometimes to let it alone; to abstain from no Kinds of Aliment commonly used; sometimes to make one at an Entertainment, and sometimes to forbear it; sometimes to eat more, and sometimes less; to make rather two Meals a Day than one, and always to eat heartily, provided the Stomach be found capable of digesting the Quantity taken. But as Exercises and Aliments taken in this way are necessary, so those of the Athletics are superfluous and hurtful; for if Affairs of any Nature should oblige a Man to interrupt and break off the Order and Course of the Exercises to which he has been accusom’d, his Constitution is by that means disorder’d. Besides, Persons who live in this manner soon become old, and subject to Infirmities. We ought neither too eagerly to pursue, nor too solicitously to avoid, Intercourses with the tender Sex: Pleasures of this Kind, rarely indulg’d, render the Body alert and active; but if too frequently repeated, weak, languid, and inactive. And as the proper Degree of these Pleasures is not to be estimated by the Number of Repetitions, but by the Constitution, the Age, and the Strength of the Person, so we may take it for granted, with respect to this Particular, that the Enjoyment which is neither followed by Weakness, nor succeeded by Pain, is not prejudicial. The Day-time is the worst Season for Pleasures of this Kind, especially if they are succeeded by a full Meal; the Night is less hazardous, but even then subsequent Fatigue, with long Waking, renders it improper. These Rules ought to be observ’d by Men in perfect Health; and so long as we are to enjoy this State, we ought not profusely to waste and dissipate what may be our Support, when we come to be sick.”

As my Design in this Preface is not to specify the Condition of Physicians, but the State of Physic, I shall not enter into a Detail of Opinions relating to the former, either during the Commonwealth, or under the Emperors of *Rome*. It seems upon the Whole, that Physic was practis’d in *Rome* by People of much the same Condition as those who exercise this Art at present in all Parts of *Europe*; as Men of Learning and Distinction, no matter whether *Romans* or Foreigners; People who had not met with Encouragement in other Professions, as it happened in the Case of *Asclepiades*, who, on his first Arrival at *Rome*, taught Rhetoric; Surgeons, Mountebanks, Venders of Drugs, Preparers of Medicines, Midwives, and others of the lowest Rank. These Circumstances, however, by no means derogate from the Reputation of the Art of Physic, or Physicians, whose Honour must be deriv’d from Success in curing Distempers, and from nothing else; insomuch that I believe every one labouring under a Distemper would hold a Slave, who could cure him, in greater Esteem, than a Prince, who could not.

I must not, however, omit taking some Notice of *Antonius Musa*, who is celebrated for curing *Augustus Caesar* of a Distemper he labour’d under, by directing him to use cold Baths, and thereby brought this Remedy into great Vogue. He had a Brother called *Euphorbus*, who was Physician (see *Musa*) to *Juba* the Second, King of *Numidia*, who married *Selene*, Daughter to *Antony* and *Cleopatra*. This Prince was a great Naturalist, and described the Tree which produces Frankincense, and the Plant which yields Euphorbium; and the latter he nam’d in Honour of this Physician, in a Book he dedicated to *Caius Caesar*, Grandson to *Augustus*.

Mr. *Le Clerc* is of Opinion, that the *Artorius*, quoted by *Caelius Aurelianus*, as a Follower of *Asclepiades*, is the same Person who is, by *Suetonius* and *Plutarch*, call’d the Friend of *Augustus*, and who sav’d the Life of that Emperor on the Day the Battle of *Philippi* was fought, by advising him to be carry’d to the Field, sick as he was. This Advice was occasioned by a Dream which *Artorius* had, and *Augustus* had fallen into the Hands of *Brutus*, who, during the Battle, made himself Master of the Camp that Emperor had quitted, if he had not taken the Counsel of *Artorius*. This Circumstance makes him taken Notice of by all the Writers of the History of Physic, though in his Profession he makes no great Figure.

The Physicians who liv’d after those already taken Notice of, till the Time of *Galen*, seem generally to have embrac’d implicitly the Sentiments of one or other of the Sects above-mentioned, or to have drudg’d on in the beaten Track of Practice, without giving themselves any great Pain about any thing but making their Fortunes. The principal of those, however, who are mention’d with Honour, are *Andromachus*, Physician to *Nero*, and *Rufus Ephesus*, who liv’d under *Trajan*, of whom I have given an Account under the Articles of their Names.

But *Galen*, who was born at *Pergamus*, in the Reign of *Adrian*, about the hundred and thirty-first Year of the Christian *Æra*, affords us abundant Materials for the History of Physic.

At the Time when *Galen* made his Appearance in the World, the Dogmatic, the Empiric, the Methodic, the Episyntetic, the Pneumatic, and the Eclectic Sects, were still in Being. The Methodics were at this time held in great Esteem, and look’d upon as superior to the Dogmatics, who were strangely divided among themselves, some of them favouring *Hippocrates*, others *Erasistratus*, and others *Asclepiades*. The Empirics made the least considerable Figure of any. And the Eclectic Sect had not, in all Probability, the largest Number of Votaries, though it appears of all others to have been the most conducted by Reason, since its Abettors profess’d only to choose from each what was best; and to strip themselves of every partial Attachment, for the sake of Truth. As for the Episyntetic and Pneumatic Sects, we have already consider’d them as Dependents, in some measure, of the Methodic.

We might suspect, that *Galen* was a Favourer of the Eclectic Sect, since he declares that he will not blindly follow any of the Physicians who went before him; and treats as low and servile Geniuses, those Men who, in his own Time, call’d themselves the Followers of *Hippocrates* or *Praxagoras*, and did not choose indifferently what was good and excellent from the Works of every Physician. But, notwithstanding this Declaration, *Galen* seems to be more attach’d to *Hippocrates* than to all the rest, or rather to have follow’d none but him. *Hippocrates* was his favourite Author; and though in some Passages he accuses him of Obscurity, want of Order, and some other Imperfections, yet he never fails to testify an uncommon Veneration for him, and own that he has surpassed all others in laying down the genuine Principles of Physic. *Galen* was so fully persuaded of this, that instead of taking any thing from the Physicians of other Sects, or keeping any Medium, he compos’d several Books, in order to refute their Principles, and establish those of *Hippocrates*. Though before the Days of *Galen* several Physicians had commented upon *Hippocrates*, yet he pretended, that most of them had failed in the Attempt; and

and thought himself the only Author who had penetrated into the real Meaning of that antient Physician, though, as some learned Men have justly observ'd, he often strains his genuine Sense.

His first Attempt, then, was to explain *Hippocrates*, with which View he wrote a great deal. Besides, as he observed, that his Author was not only obscure in several Passages, but also that he was defective with respect to Order and Method, and that he had not a Knowledge of certain Things which were discover'd after his Time, he attempted from his own Stock to supply what was wanting in the general Principles of *Hippocrates*. Though *Galen* had done no more than represent in a clear Light the Medicine of *Hippocrates*, his Labours had merited well of Mankind, provided *Hippocrates* laid down the genuine Principles of the Art. It was, no doubt, a Task of the last Importance to represent these Truths in their genuine Light, and rectify the Mistakes of those Innovators, who, according to him, had shamefully wander'd from the antient Road. *Galen*, however, does not pretend to have merited any Honour from this Part of the Design, but boasts of having been the first who shewed a just and rational Method of treating the Art of Physic, a thing omitted by *Hippocrates*. In order to specify fully how *Galen* acquitted himself with respect to this important and extensive Task, it would be necessary to insert whole Institutes, and a complete Practice of Medicine, according to his Principles. But as our Design in this Place neither calls for it, nor our proposed Brevity allows it, we shall only give such general Hints as are sufficient to point out how this Physician behav'd in this Particular, and represent the Analogy, and the Difference, between his Medicine and that of *Hippocrates*. In prosecuting this Design we shall first consider the Idea our Author formed of Medicine in general, and then take a brief View of some of the Particularities of his System.

Galen, then, maintained, that in order to know an Art, it was necessary, previously, to be acquainted with the End propos'd by it; and that the same Method pursu'd in distinguishing other Arts, sufficiently enabled any one to know what the Art of Medicine was. Some Arts, said he, propose no other End than bare Contemplation, such as Arithmetic, Natural Philosophy, and Astronomy. Others produce also some Action; but as soon as they cease to produce this Action, they can shew none of their Effects, such as the Art of Dancing-masters. There are other Arts, the Effects of which may be seen afterwards, such as the Art of Building. There are also some Arts which produce nothing, but whose End is to take or acquire something, such as the Arts of Hunting and Fishing. Now Medicine is among the Number of those Arts which produce something, and still leave their Effects visible after the Action ceases. There is still another Distinction to be made among the effective Arts, or those whose Effects subsist after the Action ceases. Some of these produce a Thing which was not before. Others re-produce or re-establish what had existed before. Now Medicine is of this last Kind; it preserves or re-establishes the Body, by continuing Health, or restoring it when lost.

These Things being premis'd, we must, according to *Galen*, consider, that as an Architect must necessarily know all the Parts of a House, whether he intends to build a new one, or only repair one that is old: Just so the Man who intends to establish that Art whose Subject is the human Body, or the Art of Medicine, ought to know the various Parts of which this Body is compos'd, and be acquainted with their Substance, their Bulk, their Figure, their Situation, their Number, and the particular Relations they bear to each other. Again, as the Architect who attempts to build a House can never know the Parts which ought to compose it, if he has not examin'd one by one the Parts of another House like that he intends to erect; or if he has not seen all these Parts detach'd and separated from each other: Just in the same manner the Physician can never acquire a Knowledge of the human Body, but by an anatomical Examination of its component Parts. But there is this Difference between the Physician and the Architect, that the former ought not only to know the several Parts of the human Body, but also the Action peculiar to each of them.

I cannot forbear remarking on this Occasion, that without any of *Galen's* copious Reasoning, it would readily occur to any one who was not an Idiot, that the End of Medicine must be either the Preservation or Restoration of Health. The Comparison betwixt an Architect and a Physician can by no means be just, unless a Physician could build a Man, as an Architect does an House. Besides, a House neither performs Actions nor Functions; nor does it move, unless it tumbles down, and gives the Architect an Occasion of reasoning, like *Galen*, on the Causes of this Catastrophe, whilst he should rather be employ'd in rebuilding it. It must be confess'd, that in Houses, as in Men, there are Doors to admit Provisions; Sinks to carry off the Recrements of those Provisions, when the Ends are answer'd for which they were introduc'd; and Windows to let in Light: But these Doors, Sinks, and Windows, in a House, all perform their respective Functions, and are actuated by evident Causes, which cannot be justly said with respect to those in a Man. Here, therefore, the Comparison fails.

The Duty of a Physician instruct'd in all these Particulars is, first, to preserve the Parts in their natural State, so that they may answer the Ends for which they were destin'd, and freely perform their respective Functions: And, secondly, to re-establish or reduce to their first State those which have ceased to perform their Functions. He ought not even to stop here, but to attempt a new Production of such Parts as are wanting, when the thing is practicable. This Caution is add'd, because certain Parts, when wanting, cannot be again produc'd, as the Nerves and Tendons, since they are form'd of the *feminal Matter*. But there are other Parts form'd of the Blood, such as the Flesh, for Instance, which may be re-established, and restored by Nature, with the Help of the Physician. The Bones are among the Number of the Parts first mentioned. They cannot be entirely re-produced; but when they are fractur'd, or a Part of their Substance lost, they are again join'd by a Callus, which supplies the Room of the Part lost or remov'd. It must also be observ'd, that there are simple or similar, and compound or organical Parts, in the human Body; the former are the Bones, the Ligaments, the Nerves, the Membranes, the Veins, the Arteries, the Fat, the Glands, and the Flesh: They are called similar, because, upon being divided into small Pieces, each Piece resembles another. They are also called simple, with respect to those of a more compounded Nature, such as an Arm, or a Leg, one of which Parts is compos'd of almost all the similar Parts above-mentioned. These compound Parts are also called organical or instrumental, because they are the Instruments or Organs which perform the most sensible and perfect Actions. The Legs and Feet, for Instance, serve us to walk with; the Hands to feel, or hold any thing; the Eyes to see; and the Ears to hear.

The original or constituent Principles of all these Parts, as well as of other Bodies in general, are Fire, Water, Earth, and Air. The Qualities belonging to these Elements or Principles are Heat, Cold, Moisture, and Dryness. So long as one of these Elements, or one of these Qualities, does not predominate over the rest, but is proportioned to the natural Disposition of the similar Parts, these Parts are in a just Temperature, and perform their Functions as they ought to do. But when these Qualities become faulty, either with respect to Excess or Defect, an Intemperature succeeds, which, when arriv'd at a certain Degree, hinders the Functions from being perform'd as they ought. This Temperature and Intemperature also extend to the organical Parts, as they are compos'd of those

which

which are similar. It must also be farther observed, with respect to the organical Parts, that they either are, or are not, in the State they ought to be, according as they have, or have not, their ordinary Bulk or Figure; or according as they are, or are not, in the Number or Situation they ought to be. If to these Considerations we also add Union, or the want of Union, a Thing common both to the similar and the organical Parts, we shall have a Knowledge of the good and bad Disposition of the human Body, in which Health and Diseases consist.

Galen, I must observe, still reasons about a Man as if he was talking of a House; since all that he says about the former, is more applicable to the latter. Thus the Architect might say, that the Elements of his Fabric were Fire, Water, Air, and Earth; and that the Convenience or Inconvenience of his House depended upon a Proportion or Disproportion of these: If, for Example, there was too much Fire, it would be in danger of being burnt; if too little, his Mortar would not cement the Stones together; too much or too little Water would have the same Effect as too little Fire; too much Air would expose the Inhabitants to the Cold, and too little would render the House uninhabitable; too much Earth would make it clumsy, too little would produce Weakness in the Walls. The Qualities also of these Elements, as hot, cold, moist, and dry, if excessive or defective, would very much interfere with the proposed Convenience of the Habitation. Thus an Excess of Heat would be troublesome, especially in the Cellar; too much Cold would be detrimental, particularly in the Kitchen; Moisture, in a Bed-chamber or Parlour; and Dryness in the Cistern. What he goes on to say of the Bulk, Figure, Number, Situation, and Union of the Parts, may evidently be as properly said with respect to a House, as to a Man.

From what has been said, it is easy to be infer'd, that the Duty of a Physician is, on the one hand, to maintain the Temperature, and correct the Intemperature; and, on the other, to preserve the Bulk, the Figure, the Number, the Situation, and the Union of all the Parts; and to remove those Disorders which destroy this Bulk, Figure, and Number. In all these respects this Maxim prevails, *That it is necessary to keep the Parts in their natural State, by Means which have a Relation to that State*; that is, Heat is proper for preserving the Warmth of a hot Part, and Cold for maintaining that Quality in a cold Part; and so of the rest. The same is to be said of the Means employ'd for preserving the Bulk, the Figure, the Number, the Situation, and the Union of the Parts: These Means must have a Relation to these Dispositions. Thus, for Instance, in order to preserve the Situation of a Part, it is necessary to keep it in that Situation, and avoid every Accident which can produce a Change. In order to preserve the Number and the Union of the Parts, we must avoid Violence, and guard against every Accident which can cause the Loss of a Part, or break that Union which it ought to have with the others. This Maxim relates to the Preservation of Health; and the following relates to the Cure of Diseases. *The general End which we ought to propose in the Cure of Diseases, is to correct the Intemperature, and rectify the Disorders which happen, with respect to the Situation and Bulk of the Parts, by means which are contrary to that Intemperature, and those Disorders.* If, for Instance, a hot Part is become cold, it must be again render'd hot: If, in consequence of any Motion or Violence, it is removed from its natural Situation, it must, by a contrary Motion or Violence, be reduced to its former State: If it is fallen below its natural Situation, it must be raised to it again; and if it is forced above it, the Business is to thrust it downwards till it is again restored. In a Word, Disorders of this Kind are cured by their Contraries.

I must once more remark, that the same Rules will exactly serve for the repairing a House.

The Species, or rather the Cause of a Disorder, always indicates a Remedy proper for it; but as it cannot indicate whether that Remedy is practicable or not, the Physician must, in this Case, know what is possible, and what is the Reverse. This Knowledge is suggested to him by his Acquaintance with the Parts: If one of those, for Instance, which is form'd of the seminal Matter at the Time the Body is produced, should prove wanting, it cannot be re-established or restored, as has been already observed; but if those produced by the Blood should happen to be wanting, Attempts may be made for their Restoration: With respect to which we must observe, that what is said of the Possibility or Impossibility of a Cure, equally relates to Nature, and to the Physician. Some Effects *Nature* can produce, and others are beyond her Power: She can, for Instance, reproduce Flesh in the Place of that which is wanting in a Wound, or consumed by an Abscess; because, as has been already said, Flesh is a Part produced by the Blood. But Nature cannot restore a Nerve, or render a Bone entire; because these Parts are produced by the seminal Matter at the Time of the Formation of the Man. What Nature cannot do, neither can the Physician, who is only her Servant; but he helps Nature by seconding her Efforts, or following her Intentions, in all those Cases where, of her own Accord, she sometimes proves successful. If Nature can fill a deep Ulcer with Flesh, the Physician, on his Part, endeavours to make that Flesh grow, by removing every thing which can prevent or retard its Growth. If Nature labours to concoct the Aliments in the Stomach, the Physician endeavours to assist her, by making Choice of such as are most easily concocted, and with-holding those, the Concoction of which is either impossible or difficult.

The Physician, being instructed in these general Circumstances, ought afterwards to enter into those which are more particular, with respect to the Knowledge of Causes and Signs, both of the good and bad State of the Body; and, last, of all the various Means that ought to be used in order to preserve Health, and cure Diseases, by applying to particular Cases the general Maxims laid down. This is a kind of Abstract of a Part of one of *Galen's* Books, intitled, *Concerning the Establishment of Medicine*. In this Work he does not give an express and formal Definition of the Art; but it is easy, from it, to infer, that he took Medicine to be *an Art, which teaches to preserve Health, and cure Diseases*; and this Definition is drawn from the End and Design of Medicine.

Our Author however, in a Book intitled *The Art of Medicine*, proposes another Definition, taken from the Object of the Art. *Medicine*, says he, *is a Science, which teaches what is sound, what is not so, and what is of an indifferent Nature, or holds a Medium between what is sound and what is the Reverse*. This Definition is also ascribed to *Herophilus*; but *Galen* explained it in a Manner different from that Author: He affirm'd, for Instance, that there were three Things which constituted the Object of Medicine, and which the Physician ought to consider as sound, not sound, or of a neutral and indifferent Nature. These three Things are the *Body itself*, the *Signs*, and the *Causes*. He esteems the human Body sound when it is in a good State or Habit, with respect to the simple Parts of which it is composed; and when, besides, there is a just Proportion between the Organs, form'd of these simple Parts. The Body, on the contrary, is unsound when it recedes from that State or Habit, and that Proportion just mentioned. And the Body is in a State of Neutrality, or Indifference, when it is in a Medium between Soundness and its opposite State. The salutary Signs, or such as import Soundness, are such as indicate present Health, and prognosticate that the Man may remain in that State for the Time to come. The insalubrious Signs, on the contrary, indicate a present Disorder, or lay a Foundation for suspecting the Approach of one. The neutral Signs, or such as are of an indifferent Nature, denote neither Health nor Indisposition, either for the present or for the Time to come. The salutary Causes are those which either preserve Health, or restore

restore it when lost. The unsalutary Causes are those which either produce a Disorder, or nourish and maintain it after it is produced. The Causes of a neutral or indifferent Nature are such as produce no sensible Effects, either with respect to the Preservation or Recovery of Health, or with respect to the Production, or the Nourishment and Support of Diseases.

These three Dispositions of the human Body, that is, Soundness, its Reverse, and a neutral State, include and comprehend the Differences between Health and Disorder or Indisposition; and each of these three States or Dispositions has a certain Extent peculiar to itself. A sound Body, as we have already observed, is one, the Whole of whose Parts enjoy a due Temperament and Proportion; or whose similar Parts possess that Degree of Heat, Cold, Moisture, and Dryness, which they naturally ought to have, without any of these Qualities predominating over the rest; and whose organical Parts have precisely the Bulk, the Disposition, the Figure, the Connection, and other Circumstances necessary to them. A human Body thus disposed is said to be of a sound Constitution, or of a Habit in which nothing is wanting: Such a Constitution or Habit is very rare, and even perhaps never to be met with; but this does not hinder us to suppose or imagine such a Model for regulating our Judgments, with respect to other less perfect Constitutions. *Galen*, upon this Principle, established eight other principal Constitutions, all of which decline or recede in some measure from the perfect Model now mentioned: The four first are those in which some one of the four Qualities above-mentioned is superior to the rest; so that each of these Constitutions receives the Denomination of hot, cold, moist, or dry, according as any one of these Qualities becomes more sensible than the rest. The four other Species of Constitutions result from a Combination of these Qualities; so that, according to *Galen's* Doctrine, there may be a hot and dry Constitution, a hot and moist Constitution, a cold and moist Constitution, and a Constitution that is cold and dry. These are the principal Differences of Constitutions, which may be infinitely subdivided, according to the various Degrees of Heat, Cold, Humidity, Dryness, and certain other inexplicable Properties and Peculiarities in some Constitutions, which have no manner of Relation to the above-mentioned Qualities, but depend upon occult and latent Causes: Such a Peculiarity of Constitution is called *Idiosyncrasy*. 'Tis in consequence of this *Idiosyncrasy*, that some have Aversions to one Kind of Aliment, and others to another; that some cannot endure the Smell of a Rose, and others are offended with that of certain other Flowers.

But tho' the eight last described Constitutions fall short of the Perfection of the first, it does not thence follow, that People of any of these Constitutions are to be class'd among the Valetudinary and Diseased. They are still included in the Number of the Sound and Healthy, so long as the Intemperature, which removes them from the Perfection above-mentioned, does not hinder the Action of the Parts: But as soon as the Intemperature rises to such a Degree as to hinder these Actions, the Body is no longer sound, but disordered, and in a bad State. Properly speaking, then, it is hindering the Action of the Parts which constitutes a Disease; or, in other Words, with such a Hindrance Health ends, and Disorder or Infirmary begins. The intermediate State is called neutral, or that in which a Man is neither sound nor sick: He is not as yet sick, because the Actions are not as yet sensibly hinder'd; neither can he be said to be entirely sound, because these Actions have a Tendency to be no longer performed in the Manner they ought.

Galen, at great Length, describes the Signs of a good and bad Constitution, as well as those of what he calls a neutral Habit. All these Signs are drawn from the original Qualities of hot, cold, moist, and dry, in the similar Parts; and from the just Proportion or Disproportion, with respect to the Bulk, Figure, Situation, and other Circumstances of the organical Parts. Our Author, after this, comes to consider the Causes of these three Constitutions, which he derives from the same Sources he does the Signs.

But that we may a little more particularly explain the general Idea we have given of the Medicine of *Galen*, we shall first observe, that, with *Hippocrates*, he established three Principles of an animal Body, *the Parts, the Humours, and the Spirits*: By the Parts he properly meant no more than the solid Parts, and these, as we have already said, he divided into similar and organical. He also, with *Hippocrates*, acknowledged four Humours; the Blood, the Phlegm, the yellow Bile, and black Bile. He entertained the same Notions with that antient Physician, with respect to the Heat, the Coldness, the Moisture, and the Dryness of these Humours; that is, he took the Blood to be a red, hot, and moist Humour; the Phlegm a cold, white, and moist Humour; the Bile a yellow, hot, and dry Humour; and the Black a black and cold Humour. *Galen* established three different Kinds of Spirits, the natural, the vital, and the animal: The first of these are, according to him, nothing else but a subtle Vapour arising from the Blood, which draws its Origin from the Liver, the Organ or Instrument of Sanguification. After these Spirits are convey'd to the Heart, they, in Conjunction with the Air we draw into the Lungs, become the Matter of the second Species, that is, of the vital Spirits, which are again changed into those of the animal Kind in the Brain.

Galen supposed, that these three Species of Spirits served as Instruments to three Kinds of Faculties, which reside in the respective Parts, where, as we have said, these Spirits are form'd. The natural Faculty is the first of these, which he placed in the Liver, and imagined to preside over the Nutrition, Growth, and Generation of the Animal. The vital Faculty he lodged in the Heart, and supposed, that, by means of the Arteries, it communicated Warmth and Life to all the Body. The animal Faculty, the noblest of the three, and with which the reasoning or governing Faculty was joined, according to him, has its Seat in the Brain; and, by means of the Nerves, distributes a Power of Sensation and Motion to all the Parts, and presides over all the other Faculties. *Galen* also supposes three Sorts of Actions, produced by these three Faculties, the natural, the vital, and the animal Actions. These Actions he again divided into internal and external: The internal Actions of the animal Faculty are Imagination, Reasoning, and Memory: The external Actions are the five natural Senses, and, in general, Sensation and Motion. The internal Actions of the vital Faculty are violent Passions, such as Anger; and its external Actions are, the Motion or Pulsation of the Arteries, and the Distribution of the arterial Blood thro' the Body, in order to communicate Heat and Life to it. The internal Actions of the natural Faculty are Sanguification, the Concoction of the Aliments, with what depends upon it, and even Concupiscence: The external Actions are the Distribution of the venous Blood into all the Parts, which serves for the Nutrition, Augmentation, and Preservation of the Body, and for the Propagation of the Species. Besides these general Faculties, *Galen* admitted of other particular ones, which, as he imagined, resided in each Part of the Body, and provided against the Necessities of these Parts, or assisted in performing the respective Offices to which they were destin'd. The Stomach, for Instance, concocts the Aliments by means of its concoctive Faculty; attracts them by means of its attractive Faculty; retains them for some time by its retentive Faculty; and, at last, discharges them by its expulsive Faculty. If it should be asked, What is the original Source or Principle of Motion in all these Faculties? *Galen* answers, with *Hippocrates*, That it is Nature.

It was necessary to mention all these Distinctions and Terms, since upon them depend all *Galen's* Reasonings upon the Causes and Nature of Health and Diseases. This Physician thought, that a Man enjoy'd Health when these Faculties were in such a State as to produce their ordinary Actions, or so long as these Actions were entire and perfect; and, on the contrary, that these Faculties being hinder'd in their Actions, or the Actions not being performed as they ought, constituted a Disease. Now as the Actions cannot be free or entire, unless the Parts, as well as the Humours, are well disposed, it may be said, that Health depends principally on the Symmetry of the organical Parts, and on the Union or Connection of the one with the other. So long as the Parts and the Humours remain in this State, the Spirits, which partake of the Nature of the Humours, must necessarily be well disposed; and consequently the Actions performed by the Organ or Instrument of the Spirits, which are themselves directed by the Faculties, must be entire: On the contrary, when the Humours and Parts are changed, put out of Order, and disunited, the Spirits must of course run into disorderly Motions, and the Actions be interrupted.

Upon these Principles *Galen* defin'd a Disease, *Such a preternatural Disposition, or (παθον) Affection of the Parts of the Body, as primarily and of itself, hinder'd their natural and proper Action.* He established, as we have already seen, three principal Kinds of Diseases: The first relates to the similar Parts; the second to the organical; and the third is common to both these Parts. The first Kind of Diseases consists in the Intemperature of the similar Parts; and this Intemperature is divided into an *Intemperature without Matter*, and an *Intemperature with Matter*. The first discovers itself, when a Part has more or less Heat or Cold than it ought to have, without that Change of Quality in the Part being supported and maintain'd by any Matter. Thus, for Instance, a Person's Head may be overheated and indisposed, by being exposed to the Heat of the Sun, without that Heat being maintained by the Congestion or Continuance of any hot or warm Humour in the Part. The second Sort of Intemperature is, when any Part is not only render'd hot or cold, but also fill'd with a hot or cold Humour, which are the Causes of the Heat or Cold felt in the Part. *Galen* also acknowledged a simple Intemperature; that is, when one of the original Qualities, such as Heat or Cold, exceeds alone and separately; and a compound Intemperature, when two Qualities are joined together, such as Heat and Dryness, or Coldness and Humidity. He also established an equal and an unequal Intemperature; the former is that which is equally in all the Body, or in any particular Part, and which creates no Pain; because it is become habitual, such as Dryness in a hectic Constitution: The latter is distinguished from the former by this, that it does not equally subsist in the Whole of a Part, or in the whole Body, because it only begins to be form'd; or by this, that the Body is put out of Order by contrary Causes, such as Heat and Cold perceived at one and the same time. Of this Kind of Intemperature we have Examples in certain Fevers, where Heat and Cold equally, and almost at one and the same time, attack the same Part; or in other Fevers which render the Surface of the Body cold as Ice, whilst the internal Parts burn with Heat; or, lastly, in Cases where the Stomach is cold, and the Liver hot.

The second Kind of Disorders relating to the organical Parts results from Irregularities of those Parts, with respect to their Number, their Bulk, their Figure, their Cavities, their Situation, and their Connection; as when one has six Fingers, or only four; when one has any Part larger or smaller than it ought to be; or when that Part is not well form'd; or when the Perforations it ought to have, are either stopp'd up, or too open; or when it is ill situated, and out of its natural Position; or when it is separated from those to which it ought to be joined, or joined to those from which it ought to be separated.

The third Kind, which is common both to the similar and the organical Parts, is a Solution of Continuity, which happens when any similar or compound Part is cut, corroded, bruised, broken, violently strained, or burnt.

Galen, treading in the Foot-steps of *Hippocrates*, also distinguished Diseases, with respect to their Motion, into those of the acute and those of the chronical Kind; and, with respect to their Nature and Genius, into benign and malignant; and, lastly, into epidemical, endemial, and sporadic.

After having established the Kinds of Diseases, *Galen* comes to examine their Causes, which he distinguishes first into external and internal. The external Causes of Diseases are, according to him, six Things, which contribute to the Preservation of Health when they are well disposed, and properly used; but produce a contrary Effect when they are imprudently used, or ill disposed: These six Things are the Air, Aliments and Drink, Motion and Rest, Sleeping and Watching, Retention and Excretion, and, lastly, the Passions.

All these external Causes of Diseases are called the procatactic or beginning Causes; because they put in Motion the internal Causes, which are of two Kinds, the antecedent and the conjunct Cause: The former of these is only discovered by Reasoning, and consists, for the most part, in a Peccancy of the Humours, either when there is a Plethora or Plenitude, or a Cacochymy or bad State of the Juices. When the Humours are in too large a Quantity, the Case is called a Plethora; but we must observe, that this Word equally denotes too large a Quantity of all the Humours together, or a Redundance of one particular Humour, which predominates over the others. According to these Principles there may be four Kinds of Plenitudes, a sanguine, a bilious, a pituitous, and a melancholic Plenitude: But there is this Difference between the sanguine and the three other Plenitudes, that the Blood, which is the Matter of the former, may far surpass the other Humours; whereas if any of the three last-mentioned Humours exceed the rest, the Case is no longer called Plenitude, but Cacochymy; because these Humours, abounding more than they ought, corrupt the Blood. *Galen* farther divides Plenitude into Plenitude with respect to the Vessels, and Plenitude with respect to the Strength: The former of these prevails when the Humours abound so much, that the Vessels, that is, the Veins and Arteries, contain them with Difficulty. The second Sort of Plenitude is to be estimated from the Strength of the Patient, which cannot support a certain Quantity of Humours, tho' that Quantity should be but very moderate. The second Imperfection in the Humours, which we have called Cacochymy, proceeds from their degenerating, and becoming either more hot or more cold, more dry or more moist, more acid or more acid, more sweet or more salt, than they ought to be, or from their acquiring adventitious and hurtful Qualities, which they formerly had not. But we must not here forget to observe, that tho' *Galen* acknowledged, that the Humours might acquire all these Qualities already mentioned, some of which are different from hot or cold, moist or dry, which are the four Qualities he ascribes to the Humours; yet our affirming above, that he consider'd all the Causes of Diseases, with respect to these four Qualities, does not cease to be true, since he believed, that acid, saline, acrid, sweet, and bitter, derived their Origins from hot, cold, dry, and moist. When any of the three Humours, different from the Blood, predominates considerably over the rest, this also produces a Species of Cacochymy; because these Humours are not so familiar to Nature as the Blood, or because they forthwith corrupt the Blood. But when the Excess of one of these Humours is only moderate, the Case is rather esteem'd a Plenitude than a Cacochymy, as we have already observed. The second of the internal Causes, which we have called the conjunct Cause, is that which is more

closely

closely connected with the Disease, and more immediately supports and maintains it; so that this Cause being present, the Disease still subsists, and being removed, the Disorder forthwith ceases. The following Example will sufficiently shew the Difference between this and the antecedent Cause: In a Pleurisy the conjunct Cause is that Quantity of Humour adhering to the Pleura, and producing the Inflammation of that Part. The antecedent Cause is the Mass of which this Humour is composed, consider'd as diffused thro' all the Body, and contain'd in the Vessels, whence it is pour'd upon the Part affected.

As for the particular Causes of those Diseases incident to the Parts, consider'd as similar or organical, it is easy to discover them, by what has been said concerning the Nature of these Disorders. It is easy, for Instance, to conceive, that Diseases which consist in a hot or in a cold Intemperature, must be caused by every thing which can heat or cool; and that, in like manner, those which depend upon the bad Conformation of the Parts, are caused by every thing that can produce that bad Conformation. The Kidneys, for Instance, or the Ureters, which ought to be open for the Conveyance of the Urine, may be obstructed by Gravel, coagulated Blood, or any other thick Humour, or by a Tumor which compresses or streightens the Passage; and in this Case the Tumor, the Blood, or the Gravel, are the Causes of the Disorder.

Galen, in the last Place, divides the Causes of Diseases into such as are manifest or evident, such as are not so, and such as are entirely latent or obscure. The first are such as spontaneously come under the Cognizance of our Senses, when they act, or produce their Effects. The second are not of themselves perceptible, but may be discovered by Reasoning: All the Causes before-mentioned are of the same Nature with these two. The third Sort of Causes, which are called occult or conceal'd, can be discovered by no means whatever. *Galen* probably places among this Number the Cause of the Hydrophobia, when he asserts, that the Remedies which cure this Disorder, act by a Property belonging to the Whole of their Substance; whence it follows, that the Cause of this Disease acts by a Property no less obscure and conceal'd than that of the Remedy. When we assert, that this Property is conceal'd, we express ourselves in Terms probably different from those of *Galen*, but which amount to the same Thing; since to say, that a Remedy acts by a Property belonging to its whole Substance, is no more than to say, that we know not how it acts. This *Galen* himself acknowledges, when he censures *Pelops* for attempting to account for the Effects of this very Remedy, which consists of the Powder of Craw-fish: His own Words are as follows. "My Master *Pelops*, says he, attempting to account for the Effects of Craw-fish in this Disorder, pretended, that it was useful, because it was an aquatic Animal, and because the Disorder depends upon an excessive Dryness, which produces a Dread of Water in those affected with it. He added, That the River Craw-fish was more proper, in this Distemper, than that of the Sea; because these latter partake of the Salt with which the Sea-water is impregnated, and which is of a very dry Nature. But some one having started this Objection to him; If what you advance be true, whence comes it, that all aquatic Animals are not equally proper for this Disorder? he answer'd, That it was because they did not all admit of the same Preparation with the Craw-fish, the Shell of which may be reduced to Ashes; which, being of a drying Nature, consumes and absorbs the Poison which creates the Disorder. *Pelops*, continues *Galen*, fell into these Contradictions from a Principle of Vanity, which prompted him to account for every thing; but as for me, if I am not thoroughly convinced of the Truth of a Thing, I never undertake to make Profelytes of others." It were to be wish'd, that all Physicians follow'd this Maxim of *Galen*; but a culpable Dread of being thought ignorant prompts Men to speak at all Hazards, tho' they often know not what they say themselves.

After having treated of the Differences and Causes of Diseases, *Galen* comes to examine their Symptoms or Accidents. Our Author defin'd a Symptom *a preternatural Affection which depends upon a Disease, or follows it as a Shadow does a Body*: By this Definition of a Symptom, we see that it agrees with a Disease in this, that both are preternatural Affections; but they differ in this, that the Disease precedes, and the Symptom follows or ensues, the Disease being, as it were, the Cause of the Symptom. *Galen* acknowledged three Kinds of Symptoms; the first and most considerable of which consisted in the Action of the Parts being injur'd or hinder'd; the second consists in a Change of the Quality of the Parts, their Actions in the mean time remaining entire; the third relate to the Defects, in point of Excretion and Retention. The Symptoms of the first Kind differ, in particular, from the Disease in this, that the Disease consists in a certain Disposition of the Parts which hinders their Action; whereas the Symptom of this Species is only a Consequence of such a Disposition. The following Example will render this Difference more sensible, and also point out the Distinction between the Disorder itself and its Cause. In a Pleurisy the Disorder consists in an Inflammation of the Pleura: This Inflammation so changes the natural Disposition of this Membrane, that its Action, which is to assist Respiration in Conjunction with other Parts, is hinder'd: The Symptom is the Difficulty of Breathing, which is a Consequence of the Inflammation, and of the subsequent Hindrance of the Action of the Pleura. The Cause, whether antecedent or conjunct, is the Humours, which are ill-disposed; a Part of which is pour'd upon the Pleura, and occasions the Inflammation. This first Species of Symptoms varies according as the Actions or Faculties, on which they depend, themselves vary. Thus there are Symptoms of the natural, the vital, and the animal Faculties. Bad Digestion is a Symptom of the natural Faculty, and consists in the Defect of the natural Action of the Stomach and Intestines, whose Office it is to digest and concoct the Aliments. A Syncope is a Symptom of the vital Faculty, and consists in a Defect of the vital Action of the Heart, which is to communicate Life to all the Parts. An Apoplexy is a Symptom of the animal Faculty, and consists in a Defect of the animal Action of the Brain, by which Motion and Sensation are communicated to the Parts. Madness and Phrensy are Symptoms of the governing Faculty, which is joined to the animal Faculty, and they consist in a Defect of the Action of this governing or reasoning Faculty. Here we must observe, that under these three general Faculties are comprehended the several particular Faculties already mentioned, and which have each their peculiar Symptoms. We must, besides, observe, that the Actions may be defective in three different Manners; first, when they are abolish'd, or cease entirely; secondly, when they are diminish'd, or only partially perform'd; and, thirdly, when they are depraved, or not performed as they ought to be. Blindness, for Instance, or the Loss of Sight, is a Symptom of the Action of the Eye being abolished: The Defect of those who are short-sighted, or who do not see, except in open Day, is a Symptom of this Action diminish'd: And the Disorder of those to whom Objects are represented as of another Colour, or in another Situation, than they really are, is a Symptom of the Depravation of this Action.

The second Species of Symptoms, which consist in a Change of the Quality of the Parts of the Body, derive their Differences from the Number of those Senses commonly called external. The changed Qualities which relate to the first of the Senses, which is that of Sight, are the extraordinary Colours which the Body assumes in certain Diseases; such as a yellow Colour, for Instance, in those who labour under the Jaundice. This Change

of Colour is not an Action hinder'd; but, however, is an Accident or Symptom of a Disease. Like Changes happen with respect to Hearing, Smelling, Tasting, and Feeling.

The third Kind of Symptoms relate to the Faults of Excretion and Retention, or of those things which are either discharged from the Body, or retained in it. These things are injurious, either with respect to the Whole of their Substance, such as Worms and Stones, which ought never to be in sound Bodies; or with respect to their Evacuation, such as the Excrements, which, tho' of the natural kind, are yet discharged by extraordinary Passages, as is observed in the Ileus, when the Fæces are discharged by the Mouth. It also happens, that Substances distinct from the Excrements are sometimes discharged, whereas they ought to be retained in the Body. This is daily seen in Hemorrhages, when the Blood is discharged by the Nose, by the Mouth, by Stool, or in any other manner; but the menstrual Discharges of Women are Exceptions to this Case. Another Fault of things discharged or retained relates to their Quantity; as when the Excrements are wholly or partly retained, or when they are evacuated in too large a Quantity; when the Discharge of the Urine is too profuse, too scanty, or none at all; when the hemorrhoidal or menstrual Fluxes either do not return at their stated Times, or are too copious. The last Fault relates to the Quality of these Substances, as when the Excrements are either too much indurated, or too liquid, or of a preternatural Colour and Smell; when Women labour under the Fluor Albus; or when the Saliva is either bitter or saline. Some of the Symptoms described under this third Class have a Relation to those of the first, which relate to the Hindrance of the Actions.

We must also observe, with respect to those Substances evacuated from the Body in some Diseases, that their Excretion is not always a Symptom, tho' they are sometimes discharged in great Abundance. Hemorrhages, for Instance, Sweats, and Diarrhoeas, which happily terminate Diseases, are not Symptoms. Evacuations of this kind are, by *Galen*, considered as the Work of Nature, which has surmounted the Disease, and put an End to it by a Crisis.

Having thus spoke of Diseases, their Causes, and their Symptoms, we now come to treat of their Signs. The Author of the Definitions ascribed to *Galen* defines a Sign to be *That which discovers, or makes known, what was formerly unknown.* *Galen*, as we have above observed, distinguished Signs into those which are salutary, those that are not so, and those which are of a neutral or indifferent Nature; but, for the sake of Brevity, we shall only here consider the Signs of Diseases. Of these *Galen* established two principal Kinds; the former he called *Diagnostic*, and the latter *Prognostic* Signs. The *Diagnostic* Signs are so called, because they enable us to know Diseases, and to distinguish them from each other. There are two sorts of *Diagnostic* Signs, the one called *Pathognomic*, which are peculiar to a Disease, make known its precise Species, and always accompany it, so that they begin and end with it. The other Species of *Diagnostic* Signs are called *Adjunct*; these are common to several Diseases, and only serve to point out or discover the Differences between Diseases of the same Species. In a Pleurisy, for Instance, the pathognomic Signs are a Cough, a Difficulty of Breathing, a Pain of the Side, and a continued Fever. The adjunct Signs are the various sorts of Matter expectorated, which are sometimes bloody, sometimes bilious, sometimes white, frothy, thick, or clear. Our Author drew the *Diagnostic* Signs, first, from the Essence or Nature of the Thing itself, that is, from the defective or disordered Disposition of the Parts, or from the Diseases themselves; secondly, from the Causes of Diseases; and, thirdly, from their Symptoms, among the Number of which are the various Pulses, and the Excrements: And, lastly, from the particular Dispositions of each Body, which are sometimes hereditary, or derived from Parents, from things which prove prejudicial, and those that do Service, and from epidemical Diseases.

In order to draw Signs from the injured Disposition of the Parts, we must previously know what are the Parts affected, or which are not in a good Disposition; whether, for Instance, it is the Foot or the Hand, the Liver or the Lungs. This, with respect to the external Parts, may be discovered by the Sight and the Touch; and by the same Means we may also judge of the Species of Disorder under which they labour. But this does not hold with respect to the internal Parts, to discover which a great deal of Labour and Skill are required. *Galen*, however, in order to answer this End, adverted carefully to five Things: First, the particular Action injured; secondly, the Nature or Species of the Pain felt; thirdly, the Situation of the Part in which the Pain, or any other preternatural Circumstance, is perceived; fourthly, the Accidents peculiar to each Part; and, lastly, the Excrements peculiar to these Parts, or which certain Parts usually discharge, and the Manner in which certain Substances are evacuated. A Knowledge of the Action or natural Use of the Parts contributes very much to the discovering which of them are affected; for as all the Actions, whether natural, vital, or animal, are performed by certain Organs or Parts of the Body, it follows, of course, that when an Action is hindered, the Part which should perform it is affected. Thus a difficult Concoction of the Aliments denotes, that the Stomach is affected, because 'tis the Office of the Stomach to concoct the Aliments. A Difficulty of discharging the Urine imports, that the Bladder, Kidneys, or Parts connected with them, are affected, because 'tis the proper Action or Office of these Parts not only to contain, but also to give a free Passage to the Urine. An Alteration of the Pulse signifies an Affection of the Heart and Arteries, because the Pulse is an Action of the Heart and Arteries. Blindness is a certain Sign, that the Eye is affected, because the Eye is the Organ of Sight. Immobility of a particular Part, or of the whole Body, witnesses that the Nerves are affected, because the Nerves are the immediate Instruments of Motion. But, as a Part may be affected in two Manners, either primarily, and by itself, or only by Consent, that is, by the Connection or Communication it has with some other Part; so the Affections thus produced are accordingly distinguished. We know the proper or primary Affection of the Part, when that Affection is unaccompany'd with any other, when it continues for a considerable Time, when it does not augment in proportion as some other Affection increases, when it continues after another Affection has ceased, and when the Remedies usually apply'd for its Relief produce their ordinary Effects; on the contrary, that Affection which is only produced by Consent, augments or diminishes in proportion as some other Affection does, and the Patient is not relieved by the Remedies proper for that Affection, when of the primary Kind. Thus Vomiting, which is an Affection of the Stomach, sometimes happens in consequence of the Consent or Connection between that Part and the Kidneys; so that the Kidneys being primarily affected, the Stomach suffers by Consent, tho' no Disorder acts directly and immediately upon itself. In this Case the ordinary Remedies for the Stomach are of no Use, and the Physician must direct his Views to the Cure of the Kidneys; whereas, if the Stomach was properly and primarily affected, his Care ought to be employed for the Relief of that in particular. The Nature or Species of the Pain felt indicates the Nature of the Part which suffers, or is affected. If the Pain is accompanied with Pulsation or Beating, 'tis a Sign, that there is an Artery, either in or near the Part in Pain. If the Pain is pungent, 'tis a Sign, that the Part affected is membranous; and, if it is convulsive, the Nerves suffer. The Situation of the Place pained also indicates the Part affected. Thus a deep-seated internal Pain, with Tension and Swelling of the right Hypochondrium, denote that the Seat of the Disorder may possibly be in the Liver, which is situated in
that

that Place. The same Accidents or Symptoms inform us, that the Spleen may be affected, when they appear in the Left Side, which contains the Spleen. But, if the Pain and Tumor are external, they have their Seat in the Muscles which cover the respective Parts. The Accidents peculiar to each Part also serve to discover those which are affected. Vomiting, for Instance, the Hiccough, and a Nausea, shew that the Stomach suffers. A Delirium is a certain Sign, that the Brain is affected; and Hoarseness indicates a Disorder of the Aspera Arteria. The Nature of the Excrements also serves to discover the Part affected. Small Filaments of Flesh, discharged with the Urine, denote that the Kidneys are affected; and Scales, discharged the same way, are a Sign that the Bladder suffers. Soft fungous Flesh, and which suddenly arises in Fractures of the Cranium, denotes that the Membrane of the Brain is affected. When the Urine is discharged from a Wound of the lower Belly, 'tis a certain Sign that the Bladder or Ureters are wounded. When the Fæces are discharged from a Wound of this kind, 'tis a Sign that the large Intestines are pierced. The menstrual Evacuations come from the Matrix, the Seminal Matter from the Spermatic Vessels, Worms from the Intestines, Gravel and Stones from the Kidneys and Bladder. The Manner in which certain Substances are evacuated, also indicates the particular Parts from which they are discharged. The Blood, for Instance, which flows from a Wound by starts, flows from an opened Artery. The Blood, which is discharged from the Mouth in Coughing, comes from the Lungs. It is of so great Importance to the Physician to know the Part in which the Disease is seated, that *Galen* has composed six Books upon this very Subject, which are, perhaps, the best of any he has wrote.

After knowing the Part affected, we are afterwards to find out the Affection or Disorder of that Part; and that, as we have already said, by drawing Signs either from the Disease itself, or from its Causes, or from its Symptoms. As for the Signs drawn from the Disease, since the two principal Kinds of Diseases are Intemperature and bad Conformation, these sometimes discover themselves spontaneously, when they have arrived at a certain Pitch; and, in this Case, they may be judged of by the Senses. But, when these two Defects are not very perceptible, in order to discover them, we employ almost the same Means we use for discerning the Part affected. The Causes of Diseases also furnish various Signs for knowing their particular Natures: Thus we conclude, that a Disease produced by black Bile is malignant, and that one produced by the Blood is benign. If any one has taken a very acrid Medicine, or a Poison, we judge of the Species of the Disorder, produced by this Medicine or Poison, by the Knowledge we have of the Nature of the Cause. But the Symptoms of Diseases supply us with the largest Number of Signs; and, as there are three Kinds of Symptoms, each Kind furnishes us with particular Signs. The Symptoms, whether of the animal, the vital, or the natural Actions, are the first. If a Delirium, for Instance, which is a Symptom of the animal Action being injured, is accompany'd with Fury, it indicates a hot Intemperature of the Brain; but, if it is accompany'd with Terror and Sadness, it denotes a cold Intemperature of the same Part. Excessive Sleep, which is another Symptom of the same Action, denotes a cold and moist Intemperature of the Brain; and Watching indicates quite the contrary. A Privation of Motion, in any Part, discovers that the Nerves, distributed to that Part, are either obstructed, relaxed, or cut. Very considerable Signs are also drawn from a Defect of the vital Actions. The several Alterations of the Pulse, which are Symptoms depending upon this Defect, supply us with various Signs. A great and frequent Pulse indicates a hot Intemperature; whereas one that is small and slow, indicates a cold Intemperature. Those Symptoms which proceed from a Lesion of the natural Actions, are not of less Importance in furnishing us with Diagnostic Signs, or such as indicate the particular Species of the Disorder. A weak Appetite, accompanied with a violent Thirst, imports a hot Intemperature. A great Appetite, on the contrary, without Thirst, denotes a cold Intemperature. Various Signs may also be drawn from the Symptoms furnished by the Substances discharged from the Body, and their various Qualities. That Blood, for Instance, which is copiously discharged in Coughing, denotes a Rupture of some Vessel of the Lungs; but the Blood which is expectorated in a small Quantity, and mixed with Pus, indicates an Exulceration of the same Part. When the Aliments are discharged by Stool in the same State they were in when taken into the Stomach, this denotes a Lientery. An Alteration in the Colour of the Skin is also significant in various Disorders. Of this we have an Instance in the yellow Colour of those who labour under the Jaundice, this Colour being an Indication of an Obstruction in the Gall-bladder.

The same Sources from which *Galen* drew the Signs of the Species of Diseases, also served him to discover their Differences; and enabled him, for Instance, to distinguish a malignant from a benign, and an acute from a chronic Disorder.

The last Species of Diagnostic Signs are those taken from the Causes of Diseases. We shall exemplify the Manner of drawing this Species of Signs, with respect to a Plethora and a Cacochymy, which, as we have above observed, are the most ordinary Causes of Diseases. A Plethora, which is a Redundance of all the Humours, but especially of the Blood, may, according to our Author, be known by the following Signs: There is an extraordinary Fulness of Body, and a greater Corpulence than usual; the Vessels become turgid; the Pulse strong, large, and full; but Respiration is not very free, because the Lungs and Diaphragm are oppressed; one sleeps much, or, at least, has a strong Inclination to sleep; the Body is heavy and listless, and considerable Losses of Blood are sustained, sometimes from the Nose, and sometimes from other Passages. A Plethora, or Plenitude, may also be known from the Causes capable of producing it; such as an idle and sedentary Life, the Use of succulent and too nourishing Aliments, an Interruption of accustomed Exercise, or a Stoppage of some usual stated Evacuation. A Cacochymy, which is a Depravation of the Humours, or a Superfluity of those which differ from the Blood, varies according to the Difference between one Humour and another; so that, as there are three principal Kinds of Humours, besides the Blood, there are also three Species of Cacochymies; the one is produced by the Bile, the other by the Phlegm, and the third by black Bile. We do not here mention a sanguine Cacochymy, because the Blood cannot be depraved but by degenerating into one or other of these three Humours. To begin, therefore, with a bilious Cacochymy: It is discovered, first, by the Signs drawn from the ordinary Effects of the Bile. Now the Bile being an Humour yellow, bitter, hot, dry, or of a drying Nature, it produces Effects or Accidents which have a Relation to the above-mentioned Qualities, such as a yellow Colour of all the Body, or some of its particular Parts, of the Eyes, for Instance, or of the Tongue; a pungent and drying Heat; a Bitterness in the Mouth; Discharges of yellow, bitter, and acrid Matter by the Mouth, and by Stool; Thirst, Nausea, and Cardialgias: The Patient, farther, can with Difficulty support Hunger; is hasty and prone to Anger, but has Vivacity, and a quick Pulse. All the Causes which are capable of producing a Redundance of Bile, also contribute to discover this Species of Cacochymy. These Causes are a hot and dry Constitution of the whole Body; Youth, the Summer-season, the Heat of the Climate, the Heat of the Liver in particular, the Use of heating Aliments, great Labour, or violent Exercise, Watchings, Abstinence, certain Passions, such as Anger, Resentment, and all others of the disturbing and uneasy Kind. There are also other Diseases which denote a bilious Cacochymy, because we have other Proofs, that they are produced by the Bile. These Diseases are a Tertian Fever, an Erysipelas, and

and some others. The various Depravations of the Bile are farther discover'd by the Change of Colours which sometimes happen to this Humour, as when it becomes green or black. These Changes are discover'd either by the Diseases they usually produce, or by the Colour of the Excrements discharg'd. Here we must observe, that the black Bile produces of all others the most formidable Symptoms or Accidents. The melancholic Cacochymy is also known first by the Effects of Melancholy. As this Humour is cold and dry, and also acid, black, and thick, it produces Disorders and Symptoms, which have a Relation to these Qualities. The black Excrements, for Instance, which are discharg'd in some Diseases, and the Disorder commonly called the Black-jaundice, are the Effects or Productions of Melancholy. The Hæmorrhoids, or Tumors of the Anus, by which a coarse and thick Blood is discharg'd, proceed from the same Source, as well as Varices, the Leprosy, and the Cancer. The Acidity of the Melancholy is discover'd by those Depravations of the Appetite, which oblige the Patient to eat Substances which cannot possibly nourish, such as Coal, Chalk, and Plaster; and sometimes by a Species of Hunger, which for its extraordinary Nature is distinguish'd by the Epithet *Canine*, and in which the Patient cannot be satisfied. Besides, this Quality of the black Bile is discover'd by four Eructations, and a Vomiting of Matter of the same Taste. Lastly, the Coldness and drying Quality of the black Bile are indicated by the large Quantity of Wind discharg'd, which indicates the Weakness of the Heat, and the Defect of Humidity. A small and languid Pulse, Sadness, Terror, and Taciturnity, denote the same thing. The Signs of a melancholic Cacochymy are, in the second Place, drawn from the Knowledge we have of the Causes which are capable of producing a Melancholy; the Autumn, for Instance, mature Age, a cold and dry Constitution, produce Melancholy. Coarse and dry Aliments are productive of the same Effect; but this Humour is principally augmented when one leads a discontented and uneasy Life. The Signs of a pituitous Cacochymy are these following: The Patient has a pale Countenance, a large and heavy Body, cold to the Touch, and with little Hair. The Urine is white, and the Patient is subject to Defluxions, and œdematous Tumors. He has little or no Thirst, and his Pulse is small, slow, and soft. He also greatly dreads the Cold. The Causes which generate Phlegm also discover it. These Causes are a cold and moist Constitution, a Country or a Season in which Cold and Humidity prevail, crude and aqueous Aliments, a sedentary Life, or too much Sleep. When the Phlegm, which is naturally mild, becomes acid or saline, it is discerned by the Saliva, which of course becomes acid or saline. The Patient feels frequent Itchings, and Pustules appear on several Parts of his Body. He has a greater Appetite than he ought to have, and is subject to Gripings, Rheums, and acrid Catarrhs.

These are the Signs of the three Species of Cacochymy, which correspond to the three Kinds of Humours, the Bile, the Phlegm, and the black Bile. *Galen* also reckon'd Flatulences among the Causes of Disorders. But as these Flatulences are, according to him, the Production of a pituitous or melancholic Humour resolv'd into Vapours, by a Heat too weak entirely to dissipate these Humours, we may properly enough say, that they are a Consequence of a pituitous or melancholic Cacochymy.

Having thus treated of the *Diagnostic* Signs of Diseases, we now come to consider those call'd *Prognostic*. Our Author gave this latter Name to those Signs which serve previously to discover what is likely to happen with respect to the Event of a Disease, the Time of its Duration, and the Manner in which it will terminate. He principally form'd a Judgment, with respect to the Event of a Disease, from its Species, from its Virulence, and from its peculiar Genius. Continued Fevers, for Instance, and those of the malignant Kind, are all dangerous; whereas those of the intermittent Kind are generally without Danger. A great Inflammation is more to be dreaded than one which is small; and a malignant Fever threatens the Patient more than a simple continued one. The Part affected, the Constitution and Disposition of the Body, the Cause of the Disease, the Time it lasts, the Age of the Patient, and the Climate in which the Disorder seizes, are Circumstances on which the Recovery or Death of the Patient depend. As for the Time of the Duration of a Disease, it is to be judged of by the Motion of the Disease itself. If that Motion is quick, the Disease soon terminates; but if it is too slow, it requires a longer Time. The natural Genius and Virulence of the Disease serve to discover the same thing. Thus we see Ephemeras, and simple continued Fevers, terminate happily in a few Days; whereas those of the continued putrid Kind, and such as are malignant, kill the Patient in as short a time. A simple Disease is also sooner cur'd than one of a complicated Nature. The Causes of Diseases, farther, occasion a Variation in this Species of Prognostic; for the Diseases produc'd by Heat or Cold last for a shorter Time than those which draw their Origin from Dryness and Humidity. Those Disorders which are produc'd by the Blood, and yellow Bile, are acute or short; whereas those which proceed from Phlegm or Melancholy, are chronical or long. The Age of the Patient, the Season, the Disposition of the Air, Habitudes contracted, the Sex of the Patient, and the manner of Living, have also a considerable Influence on the speedy or slow Termination of Diseases. And, lastly, the Manner in which a Disease ought to terminate, whether gradually, or all on a sudden; by a slow Concoction of the Humours, or by a Crisis; or, supposing the Patient should die, whether he will die by Oppression, or a Dissipation of Strength. All these Circumstances are previously known by examining the State of the Disease, and that of the Patient. If the Disease has a slow Motion, in all Probability the Humours will be gradually concocted; but if its Motion is quick and violent, it will probably terminate by a Crisis. Besides, we conjecture that a Crisis will soon happen when on the Approach of the critical Days the Patient finds himself more uneasy than ordinary, and when the Accidents or Symptoms seem to increase. We may even predict the Species of the Crisis by an Examination of particular Symptoms. If the Pulse is large and quick, and at the same time soft and undulating, the Crisis will happen by a Diaphoresis. If the Belly is turgid, and makes an uncommon Noise, the Crisis will happen by a Diarrhœa. If the Patient's Countenance is very red, or if he imagines he sees something red, though there be really nothing of that Colour before him, a critical Hæmorrhage will very soon happen. *Galen* one Day adverting to this last Sign, which has been mentioned by *Hippocrates*, found a proper Opportunity of acquiring a great Reputation at *Rome*. A young Man, in the fifth Day of an acute Disease, was, by the Advice of his Physicians, about to be blooded, if our Author had not accidentally put a Stop to the Execution of the Design. The Indications, said he, which you have follow'd, and which influence you to bleed the Patient, are very just. You have Reason to believe, that the Patient's Disorder proceeds from a Redundance of Blood; but you do not advert to this, that Nature herself is just about to produce the same Effect, which the Opening of a Vein would do. As *Galen* was pronouncing these Words, the young Man suddenly started from the Bed, crying, that he saw a red Serpent approaching to him. The other Physicians despising this new Symptom, as well as the Advice of *Galen*, still persisted in asserting the Necessity of Venesection; but the Blood which the Patient forthwith began to discharge, convinc'd them that our Author was more skilful than they themselves. What induc'd him to make this Prognostic was, his observing that the Patient had a Redness diffus'd from the Root of his Nose over his Cheek, and that this Redness always increased with respect to the Brightness of its Colour, which he took for a certain Indication of an Hæmorrhage from the Nostril of the same Side. This Indication was still more strongly confirm'd

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by the red Serpent which the Patient imagin'd he saw. *Galen* adds, that this Hæmorrhage was so great, that they were obliged to use means to stop it, which was effected not without Difficulty. As for those Signs which discover whether the Patient will die by Exhaustion or Oppression, they are particularly drawn from the State of the Patient, and the Nature of the Disease. If a Patient has languish'd for a long time, if he has had a Hæmorrhage or Diarrhœa, if he has neglected to support himself by Aliments, or if he has other Signs of Death about him, he may possibly die by Exhaustion. But if a Patient, threaten'd with immediate Death, has not been weaken'd by Evacuations of this Kind, or if the Disorder is recent, 'tis obvious to perceive, that he dies by Oppression.

This is sufficient for explaining the three Kinds of prognostic Signs already mentioned. But our Author, farther, established three other Species of them, with respect to other three Things, which also furnish Prognostics. "There are," says he, "three Kinds of prognostic Signs. Some relate to the Concoction or Crudity of the Humours, others to the Death or Recovery of the Patient, and the third relate to Crises in particular." All Prognostics in general are drawn from three different Sources. The first Source relates to the three Kinds of Faculties or Actions, that is, the natural, the vital, and the animal. The second Source, to the Excrements, or Things discharg'd from the Body. And the third Source, to a Change of Qualities. We shall not, on this Occasion, enter into a Detail of all that *Galen* has said with respect to these different Signs, and their various Sources; since that would be both tedious and inconsistent with our Design: However, for farther Satisfaction with respect to some other Particularities of this Author's System, we must refer our Readers to the Article *Pulsus*.

Having shewn the Nature of Diseases, with their Causes, Symptoms, and Signs, according to the System of *Galen*, we come now to point out the Method in which they ought to be treated. This Method is built upon two fundamental Maxims before-mentioned, which are, That a Disease, which is something contrary to Nature, ought to be subdued by its contrary: And that Nature is to be preserved by what has a proper Conformity with it. From these two Maxims arise the Indications, which are the Basis of practical Medicine. What *Galen* calls an *Indication* is an Insinuation, or Hint, of what ought to be done with respect to something, taken from the proper Nature or Condition of that Thing. These two Maxims, thus laid down, afford us, according to our Author, two general Indications; one of which is taken from the Affection contrary to Nature, which Affection indicates, or requires, that it should be removed, or subdued; the other is taken from the natural Constitution, and Strength, which insinuate, or put us in Mind, that they ought to be preserved. There are, as we have already observed, three Sorts of Affections contrary to Nature, which are the Disease, the Cause, and the Symptom. Of these three, the Disease being the principal, or being primarily and in itself contrary to Health, it is what we propose to cure, and consequently what properly affords the principal curative Indication, which is taken, as we said, from what is contrary to the Disease. But if we sometimes make use of like and not contrary Things, as, for Instance, a hot Remedy for a hot Distemper, that happens only accidentally through the Intervention of some other thing which is directly contrary to the Disease. In other respects we are to take care that Agents be proportion'd to Patients, and that the Contraries we employ have their Degrees suited to those of the Disease, lest, if they are too weak, they should be wholly ineffectual; and if they are too strong, should run Matters to the opposite Excess, which is no less contrary to Nature than what we intended to correct. It is farther to be observed, that the Contraries we speak of ought to be used by Degrees, because Nature cannot bear sudden Alterations. We must begin then with the weakest, and not proceed all on a sudden to the strongest. Besides, as there are several Kinds of Diseases, so there are also of Remedies: A simple Disease indicates a simple Remedy, a complicated Disease a compounded Remedy, or one that serves for several Purposes. But it is to be observed, that in complicated Cases we ought primarily to regard the principal Disease, or that which is the Cause of the rest, and, as long as it subsists, hinders their Cure. This Rule then is always to be follow'd, except in some Cases where the Physician is obliged to provide against the most pressing or dangerous Circumstance, as when there is a Malignity attending it, when it attacks some considerable Parts, or hinders some principal Action.

But tho' the first curative Indication be taken from the Disease, yet as it cannot be cured so long as its Cause subsists, it is necessary to begin the Cure, by removing or subduing that Cause. If there be several Causes, they must be remov'd, one after the other, each in its Order, in which Case *Galen* advises to begin with that Cause, which was, as we may say, first in Birth, but last in Discovery, by proceeding after an analytic method. This Maxim appears to be necessary, principally by way of Precaution, when we endeavour to extirpate the Causes of Diseases, and by that means prevent their Rise or Increase, or to cure them the more easily, as soon as they are formed.

The Symptoms, consider'd as such, require nothing particular in their Cure, because the Distemper, on which they depend, being subdued, they disappear at the same time. However, it sometimes happens, that the Physician is obliged to neglect the Disease, in order to obviate the Symptoms, when possibly the Symptom may produce a worse Disease than what it accompanies, or when it causes a considerable Abatement of the Strength. But it is to be observed, that, in the first Case, the Symptom is consider'd as a Cause; and in the other, that the Indication is not taken from the Symptom, but from the Strength of the Patient.

The Strength and natural Constitution of the Body are, indeed, the second Source from whence we take, as we said, our Indications. As to the Strength, it does not, indeed, teach what is to be done to cure a Disease, and is as little concerned in indicating the Quality of the Remedies; but it regulates their Quantity. When, for Example, the Strength is too much depressed, it forbids the Use of so powerful a Remedy as the Greatness of the Disease would otherwise necessarily require. It is for this Reason that *Galen* says, that the vital Indication, or the Indication taken from the Strength, (for Life depends on the Strength) ought to be the first of all Indications, and to precede the curative Indication. According to this Maxim, we are, before all things, to examine what the Strength of the Patient is able to bear; and we often find ourselves obliged to prescribe such Remedies as are contrary to the Scope which we propose to ourselves in the Cure of a Disease, when the Condition of the Strength indicates them. This is by so much the more necessary, because the Remedies cannot produce their Effect but as they are assisted by the Strength of the Patient, which is to be so managed as that it may be able to resist the Disease, and to hold out during its whole Course. This sort of Conflict between two Indications, and Contra-indications, sometimes give a good deal of Trouble to the Physician; however, he must, as we said, attend to what is the most urgent. Under the natural Constitution of the Body are comprehended Temperament, Habit or Custom, Age, Sex, and Condition of each Part, and all these, as well as the Strength, supply us with particular Indications for their Preservation. The Temperament, whether natural or acquired, demands our Attention in the Cure of a Disease; and Custom is to be no less regarded, because a weak and diseased Body cannot, without Difficulty, support the Inconveniencies to which it is subjected by a Change of Management. Persons who are tender are not to be treated like those of robust Bodies; Children, adult Persons, the Aged, and Women, require also regard to those particular Indications which may be taken from their respective Conditions. With regard

regard to the Condition of the Parts, there are seven Things to be considered: First, the Temperament of a hot Part, for Instance, seized with a hot Disease, does not require so potent a Remedy as a cold one under the same Disorder, because the first of these Parts is less altered from its natural Temperament by the Disease, and the other more. Secondly, we are to consider the Importance of the Part affected. The noble Parts require milder Remedies, and such as are necessarily strengthening, because those Parts are of common Benefit to all the Body, and their Preservation is of great Importance. The Liver and Stomach, which are of that Number, are always to be strengthened; and, supposing these Parts require to be refrigerated or mollify'd, we are to compound astringent and moderately heating Remedies with Refrigerants and Emollients, in order to avoid too great a Refrigeration and Relaxation. The better to shew the Necessity of such a Practice, our Author gives us a pretty long Account of what happened in his Time to one *Attalus*, a Physician, who killed, he says, a *Cynic* Philosopher, call'd *Theagenes*, by a continual Application of laxative Cataplasms to the Region of the Liver, where there was an Inflammation, against the Opinion of *Galen*, who advised the Mixture of Astringents with those relaxing Remedies. In the third Place, we are to regard the Sensation of the Part; for the more tender and sensible any Part is, the less it is able to bear acrimonious or violent Remedies; and it may happen, that the same Disease may require different Medicines, on account of its being seated in different Parts. The Eye, affected with an Inflammation, will not suffer the same Remedies as another inflamed Part. Oil, for Example, which mitigates Phlegmons, or inflammatory Tumors, in the Arms or Legs, augments Inflammations of the Eyes. Fourthly, the Contexture of the Part is to be considered: If the Part be dense, thick, and hard, the Medicines ought to be more penetrating, and stronger than such as are applied to Parts of a lax and soft Contexture. A fifth Indication is taken from the Figure of the Part, which teaches us to know by what Quarter that which incommodes it may most conveniently be discharged. The Situation of the Part affords a sixth Indication; for the more absconded, or deeply seated, any Part is, or the more remote from the Place where a Medicine may be applied, the greater is to be the penetrating Force of that Medicine. And, lastly, the Vicinity of a Part sometimes furnishes us with Indications, which make some Alterations in the Method of Cure. For we ought to regard not only the diseased Part, but those which are adjacent to it; for these last are oftentimes more tender and sensible than the first, so as to be incommoded by the Application of Medicines to the neighbouring affected Part, when they are too strong or penetrating.

Besides these two general Sources of Indications already mentioned, which are the Affection contrary to Nature, and the natural Constitution, *Galen* reckons a third, and that is, the Air which surrounds us, or what we breathe; and this also, in particular, deserves very much to be regarded in the Cure of Distempers.

All Indications, of what Nature soever, are answered by Diet, Pharmacy, or Surgery, which are the three general Methods by which Physicians treat the Diseased. With respect to these, *Galen* followed the principal Maxims established by *Hippocrates*. We shall only observe briefly, and that principally with regard to Pharmacy, that, as this Part of Medicine had been very much cultivated from the Time of *Hippocrates* down to *Galen*, the Number of Remedies, both simple and compound, was very much augmented; as may be concluded from what *Galen* himself has written on the Subject in many Books, some of which treat of simple Medicines, and others, of which there is a greater Number, of the Composition of Medicines. But it must not be forgotten, with regard to Medicines in general, that the Properties which *Galen* ascribes to them are derived from what he calls the primary Qualities, as hot, cold, dry, and moist; and that each of these Qualities has, according to him, four Degrees; for Example, a thing which is hot, is so in the first, second, third, or fourth Degree; Succory is cold in the first Degree, Pepper is hot in the fourth Degree. By virtue of these Qualities, and their various Combinations, the greatest Part of Medicines, according to our Author, perform their Operations; and tho' he acknowledges, that there are acid, saline, acrimonious, and other kinds of Medicines, yet he endeavours to prove, that these last Qualities depend on the first; as the saline, for Instance, depends on Heat, as the Principle of its Saltiness; that bitter depends on dry, that acrimonious is very hot, that acid is cold, and so of the rest. He observes, in the second Place, that whatever is hot, cold, or of any other Quality, is so either actually or potentially; Ice is cold actually, Mandrake and Hemlock are cold potentially; Fire is hot actually, Pepper potentially. Things which act not by virtue of those Qualities which distinguish them, act by their whole Substances; such are those Remedies which we call Specifics, and some Poisons and Counter-poisons: Of this Nature also are Cathartics; for they act by a particular Property of their whole Substance, in attracting each its particular Humour.

Surgery had also been a little improved since the Time of *Hippocrates*, as may be judged from what has been said concerning *Celsus*, who lived an hundred and fifty Years before *Galen*. As for *Galen*, he practised Surgery as well as all other Parts of Medicine: We have several Books of his, concerning Surgery, in particular, besides what he says on the same Subject in other Places; and he speaks of Cures in Surgery, which he himself had performed.

Having made these few Remarks on the Pharmacy and Surgery of *Galen*, we shall only add a Word or two of the Use which he made of the most common and general Remedies, such as Bleeding, Cupping, Purging, Somniferous and other Medicines already mentioned in the Practice of *Hippocrates*, whom *Galen* followed in the Manner of using these Remedies, or at least he observed his principal Maxims. All the Difference between them, with respect to Bleeding, in the first Place, was, that *Galen* used it somewhat more frequently than *Hippocrates*. In this, perhaps, he imitated the latter Physicians, who had made this Remedy so common, that *Celsus* says there was hardly any Distemper, in his Time, in which they did not use Bleeding. *Galen* took away more or less Blood, according to the Strength of the Patient: He supposes, that, on certain Occasions, one might bleed till the Patient fainted; and says, that he took away, in one Day, six Cotylæ (about three Pounds three Quarters). He drew off that Quantity principally in the Beginning of acute Fevers, under a Redundance and Estuation of the Blood; supposing that, in such Cases, the best way to put a Stop to the Fever was, as soon as possible, to make a large Evacuation of Blood in this Condition. This Case excepted, he does not advise such plentiful Bleeding; but, in order to deter such as would make use of that Remedy without urgent Necessity, or considering the Strength of the Patient, he observes, that he had seen two Persons die under it. It will answer our End better, he says, to repeat the Bleeding the same Day, or the following Days, than to take away too much Blood at one time. Besides, with respect to Phlebotomy, *Galen* used all the Precautions *Hippocrates* had done, and which he took from the Season, the Climate, the Age, the Strength, the Constitution of the Patient, and some other Circumstances. He also depended very much upon the Indications furnished by the Pulse. When the Pulse was vigorous, he bled pretty boldly, and allowed the Quantity he judged necessary to flow, so long as the Pulse retained the same Force. With respect to ordinary Venesection, 'tis probable the largest Quantity of Blood he took from the Patient did not exceed a Pound or eighteen Ounces, and that the smallest did not come short of seven or eight. He himself gives us the History of a Woman whose Menses had been stop'd for eight Months, and from whom he took, the first Day, a Pound and an half of Blood, the second Day a Pound, and the third Day eight Ounces. Our Author then was, probably, the first who specify'd the precise Quantity of Blood to be taken
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away at a time. Neither *Hippocrates* nor *Celsus* have given Directions with respect to this Particular; and *Caelius Aurelianus*, who so exactly describes all the Remedies used among the antient Methodics, neither specifies the Measures nor the Weight of the Blood they took from their Patients. *Aretæus* is also silent on this Subject; and we find not the least Fragment of any Physician's who lived before *Galen*, which informs us how much Blood they allowed to flow when they bled any one. This our Author seems to insinuate, when, in the same Passage, he tells us, *That none of the Greeks had spoken of Pounds and Ounces*; which Words must either be complete Nonsense, or relate to the Weight of the Blood to be taken by Venesection. 'Tis probable, that *Galen* did not usually repeat Venesection more than three or four times. This we may infer from a Passage of his Work *De Curat. per Sang. Miss. Cap. 12.* where it is said, that if no Circumstance obliges to draw a large Quantity all of a sudden, we must, by a first Venesection, take a smaller Quantity, than would be necessary, if we intended by one Venesection to take away the Quantity the Disease required: We must afterwards, continues he, perform the Operation a second, and even, if we think it proper, a third time. Sometimes he performed the two first Venesections in one and the same Day; sometimes he performed the second on the following Day; and even on the third Day he bled twice, if Necessity required it. He bled at all Hours, whether of the Day or the Night, but chose the Time when the Fever was most moderate; and observed, as much as was possible, only to do it when the Digestion was finish'd. He laid it down as a Maxim, that the Blood should be taken from a Vein on that Side where the Disorder was lodged, or from that Vein which seemed to have the most immediate Communication with it. He opened all the Veins *Hippocrates* had done before him, and some others besides. He open'd three Veins in the Flexure of the Cubit; the external, the internal, and that in the middle. When, in that Part, these Veins were not apparent, he bled in the Middle of the Arm. He also bled on the Back of the Hand, between the three large Fingers, the two small ones, and betwixt the Thumb and fore Finger. He also bled in the large Angles of the Eyes, and behind the Ears. He also opened the jugular Veins, and even the Arteries in several Parts of the Body; and he cauterized both Veins and Arteries, when there was a Necessity for it. He did not bleed Children under fourteen Years of Age; but, when they were a little more advanced in Years, he began by taking at most nine Ounces from them; and, if there was a Necessity for performing the Operation a second time, he augmented that Quantity by four or five Ounces. But, if he dreaded to bleed Children, he had no manner of Scruple to perform that Operation on old Men, provided they were robust. His Intentions in Bleeding were the same with those proposed by *Hippocrates*; that is, he bled in order to diminish Plenitude, or to procure a Derivation or Revulsion of Blood. When a Cacochymy was joined to Plenitude, a Circumstance which equally indicated Purgation and Venesection, he always began with the latter, as *Sydenham* has since, with great Judgment, advised, and pret's'd with much Earnestness.

We have nothing particular to observe with respect to the Use our Author made of Cupping-glasses, since he applied them to the same Purposes *Hippocrates* did; and as for Leeches, it does not appear, that he used them at all.

Neither have we a great deal to say concerning his Sentiments with respect to Purgation, since, in this Particular, he rigidly adhered to the most important Precepts of *Hippocrates*: We shall only observe, that as he bled principally with a View to diminish Plenitude, so he purged with an Intention to evacuate Cacochymy. Besides, he knew a great many Purgatives to which *Hippocrates* was a Stranger, and, in all Probability, purged more frequently than that antient Physician.

Somniferous and anodyne Medicines were also greatly in Use in the Time of our Author: He himself teaches the Manner of preparing Diacodium, which is a Medicine compounded of the Decoction of the white Poppy, and Honey. He also describes various Compositions in which Opium is an Ingredient; but it appears, that he used these Compositions rather to stop Fluxions, and mitigate Pains, than to procure Sleep.

Galen did not often exhibit Sudorifics, at least internally. We find in his Works some Compositions in the Form of Antidotes, which, according to their Titles, serve to excite a Diaphoresis; but we do not observe, that our Author used them in order to procure critical Sweats; and, indeed, he proposes no Remedy of this Nature in his Method of treating Diseases. The Means which, on these Occasions, he most generally used to excite a Diaphoresis, were, the Bath and Frictions, Remedies much used by *Galen*, and by which he often cured Fevers caused by Cold, and those of the simple continued Kind.

He sometimes also exhibited Specifics, such as the Powder of the Craw-fish, which, as we have said, he used against that Madness which proceeds from the Bite of a mad Dog: But he only prescribed Specifics in Diseases which proceed from occult Causes, such as that just mentioned; for, in all other Diseases, he used those Remedies which the ordinary Indications suggested to him.

From what has been said 'tis obvious, that the Medicine of *Galen* had a very near Affinity with that of *Hippocrates*. There is, however, this essential Difference between their Systems, that the one is almost entirely supported by Experience, and consists of Observations, whereas the other depends almost wholly upon Reasoning. The Medicine of *Hippocrates* is a Collection of Facts which he himself or others had observed, and on which he reasons but little, at least for the most part. The Medicine of *Galen*, on the other hand, is scarce any thing but a Congeries of Reasonings and Disputes. Now, as it is more easy to be deceived in Reasoning than in making Experiments, since Reasonings are subject to be contested, whereas Experiments, duly made, are admitted by all the World, it has happened, that the System of *Hippocrates* has afforded very little Matter of Exception to the Physicians who came after him, whereas that of *Galen* has been the Subject of a great deal of just and well-founded Censure. But, that this may be the better understood, we must remember, that those Books of *Hippocrates*, in which there appears the greatest Strain of Reasoning, were antiently looked upon as spurious. Some modern Authors, who maintain that *Galen* never receded from the Principles of *Hippocrates*, assert that the Book intitled *Concerning antient Medicine*, is among the Number of those of which we now speak. Unless they asserted this, they could not make their Point good, because the Author of that Book establishes an Opinion which constitutes a second Difference between the Systems of these two great Men, which is as considerable as that we have already mention'd.

" The Antients, says the Author of that Work, did not believe, that cold, hot, or moist, or any other Quality, produced Diseases in the human Body; but they were of Opinion, that such an Excess of each of these Qualities, as Nature could not surmount, produced Disorders; and this Excess they attempted to remove or correct. Now among sweet Substances, that which is very sweet is the strongest; as, among bitter and sour Substances, those that are very bitter, or very sour, are also the strongest; in a Word, what holds the highest Degree in every Substance is the strongest. These last Things, or Excesses, continues that Author, the Antients believed to be in the Body, and to prove prejudicial to it: In a Word, there are in the Body Substances, bitter, saline, sweet, sour, sharp, insipid, and a thousand other things which have different Qualities, according

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ing as they abound, or are excessive. These different Qualities are neither perceived, nor prove prejudicial to any one, so long as the Humours are mix'd, and, in consequence of this Mixture, prove Correctors to each other; but if the Humours are separated, and remain apart, then their Qualities become at once perceptible and prejudicial." From this Passage we may gather, that the Author did not mean, that the Humours he mentions acted by their primary Qualities, mentioned in the Beginning of the Passage, rather than by the others he afterwards enumerates: So far is he from asserting this, that, a little after, he says, "That it is not Heat, but Sourness, and Insipidness, which have great Strength, either within or without the Body, either with respect to what we eat or drink, or what is applied externally in whatever manner." And he concludes, That among all the Faculties none are endow'd with less Power than hot and cold. This is entirely inconsistent with the System of *Galen*, which is almost entirely founded upon the Action of the four primary Qualities, hot, cold, dry, and moist; and in which the secondary Qualities, such as sour and bitter, are only look'd upon as the Effects or Consequences of the other. There is, however, no great Probability, that the Book of which we now speak is a spurious Piece, since the Style, the Air, and the Manner of Reasoning, used by *Hippocrates*, are evidently conspicuous in it. We have no Commentary of *Galen's* upon this Book; and perhaps he declined commenting upon it, because he knew not how to reconcile these Sentiments of *Hippocrates* with his own, tho' he was sufficiently artful in making this antient Physician speak his own Language when he thought proper; for we must observe, that tho' our Author calls himself the only one who had either well understood or justly explain'd *Hippocrates*, yet he often puts another Sense upon his Words than that which is genuine. But tho' these two illustrious Physicians do not agree in every respect, yet they embrace the same Principles in many, admit of the common Principle of *Nature*, and her attractive and expulsive Faculties, agree with respect to the Signs of Diseases, Crises, and critical Days; and, which is still more material, the Practice of the one has a very near Affinity to that of the other.

It must be confess'd, that the System of *Galen* is extremely ingenious, and very consistent; and that its Author was a Person of a lively Imagination, and ready Invention. As to the Uses of his Theory in Medicine, what *Celsus* says on another Occasion, may perhaps, with great Justice, be applied to this; that is, "As in other Arts there are many things, properly not belonging to the Arts themselves, which have nevertheless a Tendency to excite the Curiosity, and form the Genius, of the Artist; just so it is with respect to Medicine, for tho' a Contemplation of these Things does not make a Physician, yet they render him better qualified for the Practice of Physic than he would have otherwise been." When *Galen* illustrates or explains any important Doctrine of *Hippocrates*, relative to the distinguishing or curing Diseases, we are much indebted to his Sagacity and Industry: But when he harangues upon his four Elements, four Qualities, Faculties, Spirits, and occult Causes, after entertaining the Imagination with a Multitude of delusory Visions, he leaves us where he found us, that is, in the Dark. He reasons well, but to no manner of Purpose, since he reasons from Principles which are generally false or precarious; and, I believe, every one must allow, that a Theory, attended with these Circumstances, is not so likely to improve Medicine, as a concise and clear Account of incontestable Facts; I mean of the Symptoms which distinguish Diseases, and prognosticate their Events, and of the Methods of Cure most generally attended with Success, and these without any Theory at all, unless such a one as has Demonstration to recommend it; for, as I have more than once observed, whatever can be doubted, ought always to be suspected, and can never be depended upon in Practice, whatever speculative Men may think or say to the contrary.

All the Theories, however, or any of them, which I have already given an Account of, may be very usefully applied to one very good Purpose, which is, to satisfy the Impertinence of some certain Quacks, and old Women, whether in Petticoats or Breeches; for there are many People so delighted with the Extraordinary and Marvellous, that they are never satisfied with what they comprehend; but require something sublime and unintelligible, which, tho' it may not satisfy their Doubts, confounds their Ideas, and exercises their Imaginations, in which they find something, as it should seem, superlatively agreeable. So true is the Observation of *Lucretius*:

*Omnia enim stolidi magis admirantur, amantque
Inversis quæ sub verbis latitantia cernunt.*

I shall not descend to particular Instances of Practice introduced or preserved by the Greek Authors subsequent to *Galen*, because these are specified under the Articles to which they belong, as the Circumstances relating to them, as Authors, are related under the Articles of their Names; of which, that the Reader may turn to them for farther Information, I shall give the following Catalogue, in the Order of the Time in which they lived:

Oribasius.

Aetius.

Alexander Trallianus.

Aegineta (Paulus).

Aetuarus.

Myrepsus.

There are some few more, who have either already been spoke of as Followers of particular Sects, or who are of too little Importance to require Notice in this Place.

None of these Authors have attempted any general Innovation, either in the Theory or Practice of Physic; but have contented themselves, for the most part, with the Systems and Methods of their Predecessors, especially *Galen*, only deviating from them on particular Occasions. Their Works consist principally of Collections; and whoever reads them carefully, will find them extremely faulty, in neglecting to ascertain the Efficacies of known Simples, and seldom attempting to discover any Virtues in them, which had not been observed by former Authors, from whom they transcribed. Instead of being thus usefully industrious, they have shamefully mis-spent their Time in describing and recommending an infinite Number of compound Medicines, which has contributed to overload Physic, render the Practice of it precarious, and to retard its farther Advancement. They must not, however, be defrauded of the Praise which Dr. *Freind* gives them, who says, "They did not compile so as to have nothing at all new, and what we may call their own, in their very voluminous Works; for tho' I must confess, that there are not a great many things in them, in proportion to the Bulk of their Books, but such as may be found in *Galen* and others, yet some there are too, in regard to the real Improvement of the Art itself."

What I have said of these lower Greeks, is strictly true of the Arabian Physicians. These, however, have the Reputation of having introduced some Simples into Medicine, which were not known either to the Greeks or Romans, especially some of the milder Cathartics, as Manna, Sena, Tamarinds, Cassia, Myrobolans, and Rhubarb; tho' Dr. *Freind* says, that the last is first mentioned by *Alexander Trallianus*. The Arabians also brought Sugar into medicinal Compositions; and hence arose many Forms of Medicines unknown to the Antients, and indeed of

no great Use to their Successors : Amongst these are Syrups, Julaps, Conserves, and Confections, particularly the *Confectio Alkermes*, perhaps the best of them all. We owe, farther, to them the Introduction of Musk, Nutmegs, Mace, Cloves, and some other Aromatics ; but we are much less obliged to them for applying to medicinal Uses precious Stones, and Leaves of Gold and Silver. The *Arabians* likewise were acquainted with some few chymical Remedies ; but their Knowledge, in this way, seems to have reach'd no farther than distil'd Waters, and Oils.

But what principally recommends them to our Perusal is their having described, more distinctly at least, some Distempers to which the Antients are said to have been Strangers, amongst which are the Small-pox, Measles, and Spina Ventosa ; tho' there is some Reason to suspect, that *Hippocrates* had seen the first.

That I may convey a general Idea of the State of Physic among the *Arabians*, I shall give the Translation of a Letter, wrote by the Abbé *Renaudant* to Mr. *Dacier*, which is prefix'd to his Translation of a Part of *Hippocrates*, and which *Fabricius* in his *Bibliotheca Græca* has given us in *Latin*.

A Knowledge of the Oriental Languages would formerly have been very useful to a Physician, when there were no Books to instruct him in his Art, but such as were made or translated by the *Arabians*, which was the Case till the End of the fifteenth Century : But since we have begun to read the principal Authors in their own Language, we have entirely left off the Reading of the *Arabians* ; and there is scarce a Man of Learning who will read *Hippocrates*, *Dioscorides*, or *Galen*, in bad Translations from the *Arabic*. An Opinion, however, prevails among the Learned, that tho' the Perusal of *Arabian* Authors be not necessary, it is still useful for correcting the original Texts. This Opinion is owing to a too easy Faith in what they, who have made it their Business to study the Oriental Tongues, have spoken in Praise of the *Arabians*. It is true, that, in the Decay of Literature in *Europe*, the *Arabians* cultivated all the Sciences ; that they translated the principal Authors, some of whom, who wrote in *Greek*, are only to be found in *Arabic* Translations ; and this is what made so many Philosophers, Physicians, and Mathematicians, among the *Arabians*. We ought, therefore, to allow them their due Praises for cultivating the Sciences, without considering them as excellent Translators, which we can never do, if we are acquainted with them. *Salmasius* very much contributed to the establishing such an Opinion, by citing Books which he hardly knew, and promising to restore *Dioscorides* by an *Arabic* Version, which he had read in *Ebenbeitar*. But M. *Dodart*, who had seen some Essays of that Author, seems to think otherwise of that Affair ; and, indeed, there wants no more than the reading the History of those Translations, to enable us to form a Judgment of them. The most ancient Translations, which were made by *Syrians* into their own Language, are entirely lost, and there remains nothing of them but the bare Titles ; but if they were like the Versions of the *Greek* Ecclesiastic Authors, which still remain, we cannot but think, that those who are so often mistaken in common Matters, were guilty of more considerable Errors with respect to medicinal Subjects, which were so difficult, that the *Greeks* themselves were oblig'd to make Dictionaries to explain them. We may judge of this Affair by many *Greek* Words which still remain in the *Syriac* Dictionaries, because there were no Words in *Syriac* to explain them ; and when the *Arabians* undertook to translate them into their own Tongue, they often misunderstood them. And yet we cannot deny, but that these first *Syriac* Versions were made when *Greek* was better known, and was even still commonly spoke ; whereas the most Part of the *Arabic* Translations were made under the second Race of the Caliphs, Successors of *Mahomet*, when the literal *Greek* was no more than a learned Language in the Countries belonging to them. The Time when these Translations commenced is commonly fix'd in the Reign of *Almamun*, the Fifth of those Princes. He favour'd learned Men more than any Prince, and brought his Nation in Love with the Sciences of the *Greeks*. *Abn Jusar Almanfor*, his Grandfather, had begun to give great Rewards to learned Men, particularly those who translated *Greek* Books into *Arabic*, and thereby gave an Opportunity to the *Arabians* to cultivate Philosophy, Astronomy, Mathematics, and Medicine. Some of the principal Books were already translated into *Syriac* by *Sergius* the *Syrian*, who lived under the Emperor *Justinian*, and passed for the most ancient Interpreter. *Almamun* made a particular Search for *Greek* Books, sent to Christian Princes for them, and, when he had collected a great Number, made an Inquiry for Men of Letters to translate them into *Arabic*. It is commonly believed, that the greatest Part of these Translations were from the original *Greek*, and some of them perhaps were so. But the best Historians observe, that the greatest Part were made from *Syriac* Versions, which were in the Possession of *Syrians*. This Caliph, and his Grandfather *Almanfor*, who built *Bagdad*, generally resided there, and the *Syriac* was still commonly spoken, and even *Greek* was the vulgar Language in several Cities ; yet the Knowledge of the *Syriac* was almost confin'd to Christians, for which Reason these had the principal Share in this Work. One of the first of these Versions was that of *Hippocrates*, which was made by some Christian Physicians, who were in great Esteem at the Court of the Caliph *Almanfor* : 'Till that Time the *Arabians* set but little Value upon foreign Physic ; and we find, in the History of *Mahomet*, that a Prince sent him a Physician, who was a long Time among them without having any thing to do ; and that one Day he went to wait upon *Mahomet*, and complain'd, that, since he had been among the *Arabians*, not one Person had ask'd his Advice. *Mahomet* answer'd, That the *Arabians* never eat but when they were hungry, and always rose from Table with an Appetite. The Physician, bowing low, retired, saying, That it was the true Rule of Health ; and that where it was practis'd, the Physician had no Business. Historians take Notice, that among the *Arabians* was a Physician called *Hareth Ebn Chalda*, to whom *Mahomet* sent sick Persons, and that he treated them with very simple Remedies.

Almanfor being very much indisposed, and having tried all Sorts of Medicines, sent into *Persia* for *George*, the Son of *Boet-Jeebua*, who was a long time his chief Physician. This Man was a *Syrian*, and a *Nestorian* Christian, and his great Skill was attributed to his having studied the Antients, the principal of whom he translated into his own Language. This Person gave the Mahometans a Relish for these Studies, in which the *Syrians* were their Masters, for we scarce meet with a Mahometan who had studied *Greek* ; and as the greatest Part of them had no better Knowledge of the *Syriac*, when they applied themselves to the Study of *Greek* Books, particularly in Medicine, they were obliged to make use of *Arabic* Translations made by Christian *Syrians*, under *Almanfor* and *Almamun*. The *Egyptians* also applied themselves very diligently to that Study. The *Greek* Tongue was preserved in *Egypt* longer than in *Syria*, especially among the orthodox Christians commonly called *Melchites*, who made use of that Tongue in their Offices of Devotion ; whereas the *Semi-Eutychians* or *Jacobites* perform'd theirs in the *Coptic* or *Egyptian* Tongue. But the *Egyptians* made very few Translations in Comparison with the *Syrians* ; because the Caliphs, who were Protectors of the Sciences, never went into that Country, which was govern'd by Emirs or Viceroys, under the Caliphs.

It is very probable, from the concurring Testimony of many oriental Authors, that there were Translations of *Hippocrates* from the first Times of *Almanfor* and *Almamun*. But that which eclipsed them all was the Version of *Honain**, the Son of *Isaac*, who was in high Esteem with the Caliph *Elmotewakel*. This Prince began his Reign

* He was a Christian, but died excommunicated by the Patriarch, for some grand Piece of Irreverence committed against Images. *Hebelet. Bithlet. Orient.*

in the Year of the Hegira 232. *Anno Christi* 846. and dy'd in Hegira 247. *A. C.* 861. This *Honain* was the Disciple of *John*, surnamed the Son of *Masowia*, who is the same whom we commonly call *Mesue*. Historians observe, that this *Honain* undertook to make a new Translation of the *Greek* Books, because that of *Sergius* was very defective. *Gabriel*, the Son of *Boet-Jechua*, another famous Physician, persuaded him to this Undertaking; which he perform'd with so good Success, that his Work surpass'd all others. *Sergius's* Version was in *Syriac*; and *Honain*, who had lived two Years in the Provinces where *Greek* was the vulgar Speech; in order to learn the Language, went afterwards to *Balsora*, where the purest *Arabic* was spoken; and, having perfected himself in that Tongue, set about the Translation. Most of the *Arabic* Translations of *Hippocrates* and *Galen* bear his Name; and the *Hebrew* Versions, made above seven hundred Years ago, were from that of *Honain*. The first Translators, who were *Syrians*, made their Versions in *Syriac*, most of them not having Skill enough in the *Arabic*, in the first Times of Mahometanism, to write in that Language, with that Beauty and Elegance of which it is capable, and which might render such a Work acceptable to the *Arabians*. Those who succeeded made their Translations more from the *Syriac*, than the original *Greek*; and as *Honain*, to his Knowledge in the *Greek*, added an Elegance of Style in the *Arabic*, his Translation surpass'd all others both in Exactness, and Beauty of Expression. The first *Latin* Translations of *Hippocrates*, which were used by all the Physicians in *Europe*, in past Ages, were not made from the *Greek*. Some of them which were dispersed about after the Wars of the Holy Land; were made from the *Arabic*; and those which came through *Africa* and *Spain*, where the *Jews* were extremely diligent in cultivating the Art of Medicine, were, for the most part, done from *Hebrew* Versions made from the *Arabic*. It is very difficult to distinguish one from the other, because the Transcribers, and the Physicians themselves of those Times, often corrected their *Latin* Editions by any others they happened to meet with; and their Manner of translating them was so bad, that these Translations being corrected either by Physicians who neither understood *Arabic* nor *Hebrew*, or by *Jews* who knew nothing of Medicine, became unintelligible, as soon as that Author began to be read in the Original. The same might be said of all the Versions of *Greek* Authors, particularly of *Aristotle*. This Author had, in like manner, been translated into *Syriac*, thence into *Arabic*, thence into *Hebrew*, and it is from this third Translation that all those which have been read in the Schools, till the Revival of Learning, and the Study of the *Greek* Tongue, have been made and corrected. The Ignorance or Carelessness of Translators went so far, that if you compare an antient Translation of *Avicenna* with the Text, you will hardly know it, much less that of more difficult Authors.

But as to *Honain*, the Son of *Isaac*, he is the most considerable, and almost the only, Translator of *Hippocrates*; and it is from him that the *Arabians* have taken all their Knowledge of the History of Medicine. Besides this, there were in those Times two Translations, one *Syriac*, and the other *Arabic*. The first pass'd for a second Original; and we often find in the antient Copies of *Arabic* Translations, particularly of *Dioscorides*, that they had been compared with the *Syriac* Editions. The first are become very scarce for some Ages past, because the *Syriac* is become a learned Language, which is only used among Christians, who have so far forgotten it, that though they celebrate divine Service in that Tongue, they know no more of it than by rote. This has render'd the first Translation so scarce, that it is no longer to be met with. From what has been said it appears, that there is but little Advantage to be expected from these Versions in revising the *Greek* Text.

We may also conclude from hence, that it is very difficult to find, among the Orientals, any thing that may serve to illustrate the History of *Hippocrates*, which has not been mention'd by the *Greeks* and *Latins*. However, it cannot be deny'd, but that the Orientals have the Life of *Hippocrates*, of whom they speak with much Honour in their general Histories, regarding him as a Person of a bright Genius, and one of the greatest in Antiquity. There are but two of these Histories printed, the first of which is that of *Eutychius*, or *Sabid* the Son of *Patric*, Patriarch of *Alexandria*; the other was written by *Gregory*, surnamed *Abulfaragius*, who was Metropolitan of *Takrit*, a City of *Armenia*, and lived down to the thirteenth Century; but there is nothing particular in either of them which may be depended on.

Johannes Leo Africanus gives us the ensuing Histories of some *Arabian* and *Jewish* Physicians.

Joanna, the Son of *Mesuach*, was a *Chaldean* by Nation, and a Christian of the Sect of *Nestorians*: He studied Medicine, Philosophy, and Astrology, at *Bagdad*, when *Aaron Rasid*, the twenty-third Caliph of *Bagdad*, determining to send his Son *Ebdullah*, surnamed *Mamon*, Viceroy into the Province of *Chorazan*, this *Joanna* was recommended as the most accomplished Person that could be found for all Kinds of Learning, and Skill in several Languages, and was for this Reason thought a proper Person to attend the Prince to his new Government, and to be near his Person. This Prince *Mamon*, coming afterwards to be Caliph, and having an ardent Desire to be acquainted with the Learning of the Antients, of which there was nothing at that time translated into *Arabic*, summon'd an Assembly of Doctors skill'd in several Languages, and inquir'd of them the Names of the Authors, and of the Books which were written in the *Greek*, *Persian*, *Chaldean*, and *Egyptian* Tongue, in all Arts and Sciences. He then got together as many as he could procure from all Parts; and selecting the best and most useful in Medicine, Physic, Astronomy, Music, Cosmography, and Chronology, order'd them to be translated, appointing this *Joanna* Overseer of the Translations from the *Greek*; and this was the Time when *Galen's* Books of Medicine, and all *Aristotle's* Works, were first translated into *Arabic*. He dy'd in the eightieth Year of his Age, and the Year of the Hegira 204. *Anno Domini* 819.

Abulbusen Ibnu Telnid was a Christian, of the Sect of the *Jacobites*, and born in *Bagdad*, his Father being the Head of the Ecclesiastics in that City. This *Abulbusen* apply'd his Mind to Study with so good Success, that in a short time he became a knowing Physician, and compos'd a Book, in which he gives an Account of all the Diseases and Infirmities incident to the human Body, beginning with the Head, and proceeding downwards through all the Members, to the Feet. This Book he intitled *Elmalibi*, that is, "the very Reality," and presented it to the Soldan then reigning. The Reputation of this Work procur'd him Admittance at Court, and the Place of Physician in Ordinary to the Household, in which Capacity he acquir'd not only Riches, but much Honour and Glory: For he never took Money of a poor or labouring Man, saying he could not sell his noble Art for trifling Sums; but he freely accepted Presents from Princes, Nobles, and rich Men. He was wonderfully covetous of Honour, and so proud, that if any of his Patients transgress'd the Rules which he had prescribed, he would never visit or advise them any more, even though it were the Soldan himself. He dy'd *Anno Hegiræ* 384. *Christi* 994.

Rasis, called also *Albubecar Mubamed*, or, as others write it corruptly, *Abubeter*, *Albubeter*, and *Abubater*, was the Son of *Zacharias*, the Son of *Arabi*, or *Errasis*. *Leo Afer*, in his Account of him, calls him *Abubabar* and *Rasi*, and says he was a *Persian*, of the City *Rai*, the Son of a Merchant, and that he study'd Philosophy and Medicine at *Bagdad*, thence he went to *Cairo*, whence he was invited by *Elnansor*, a Man of great Wealth and Reputation for Learning, to *Corduba*. He there lived in great Honour, and practis'd the Art of Medicine with great Profit and Applause.

Applause. He dy'd at *Cordubà*, in the Year of the Hegira 401. of Christ 1010. being about ninety Years old. His Works which are extant are twelve Books, intituled *Elhavi*, or, as it is otherwise written, *Helchavi*, *Elchavi*, and *Elkavi*, which signifies *containing the Whole*, whence they are also called *Libri Continentes*; besides these, there are ten Books of his *ad Almanforem*, six Books of Aphorisms, and other Treatises. One *Ibn Chalicam*, in *Hottinger's Analeſta*, relates, that he dedicated also to *Almanſor* a Book of Chymistry, and received of him a thousand Denarii as a Reward; but not being able to put his Schemes in Execution, or bring Matters into actual Operation, he was punished with Whipping and Banishment.

Arnaldus of Villanova, a Person of very good Judgment, says of *Raſis*, that he was a Man of clear Speculation, ready in Practice, cautious in giving Judgment, and of approved Experience.

Leo Aſer relates the following Story of him: Passing one Day through a Street of *Corduba*, he saw a Croud of People, and inquiring the Reason, was told, that a Citizen, as he was taking the Air, suddenly dropt down dead. *Raſis* went to look upon the Man, and as soon as he view'd him, cry'd out hastily for a Parcel of Cudgels to be brought; which done, he immediately distributed them to the By-standers, reserving one to himself, and order'd them to strike and beat the dead Person in all Parts of his Body, but especially upon the Soles of his Feet, himself setting them an Example. The People thought he was mad; but, however, within a quarter of an Hour the Man began to move, and soon recover'd, amidst the Acclamations of the People, who cry'd out, A Miracle! a Miracle! *Raſis* then mounted his Mule, and made the best of his Way home. *Elmanſor* soon hearing of this strange Event, sent for *Raſis*, and complimenting him, said, "I knew you were an excellent Physician, but not that your Skill extended so far as to raise the Dead." *Raſis* answer'd, "I confess myself a Physician, but utterly unable to raise the Dead, because none but God can work such an Effect. But as to what I did this Day, I neither found it in any Book of Medicine, nor learn'd it of a Master; but once I happen'd to travel in Company from *Bagdad* to *Egypt*, and, as we went over the Deserts, some *Arabians*, Persons of Quality, joined us, one of whom, as we rode along, dropt off dead from his Horse. An old Man of their Company immediately alighted, and taking a Parcel of Sticks, distributed them to us, who exercised them in the same manner upon this reputed dead Person, as I and others did this Day on the dead Man in the Street, and with the same good Success. I did not know but this Man's Case might be the same as that of the *Arabian*; and my Care, under the Influence of your good Fortune, has been successful." *Elmanſor* was very well pleased, and could not forbear passing a Compliment upon him in these Words: "The Country which has you for an Inhabitant, may well and truly say, that she has *Galen* in the Midst of her." *Raſis* modestly answer'd, "Experience is of more Effect than the Physician."

Ezarbaragui was Physician to *Manſor*, a Counsellor of *Corduba*. He composed a very useful Work, like the Canon of *Avicenna*, on the Subject of Medicine, which is a Book in great Request among the Mahometan Physicians at this Day. He dy'd in the Year of the War of *Corduba*, aged an hundred and one, in the Year of the Hegira 404. Anno Domini 1013.

Ettabarani was a Native of *Tabarani*, a Province of *Chorasan*, and Physician to Sultan *Theebm*, King of *Ghazna*, a City of *Asia*, on the Borders of *India*. He composed a very celebrated Work in Medicine, intituled *Irdius Ulbecime*, that is, *the Paradise of Wisdom*, containing Medicinal Matters, with Descriptions of the Properties of Herbs, Animals, and Stones. He dy'd at *Ghazna*, Anno Hegiræ 474. Anno Domini 1081.

See the Article AVICENNA.

Mesuech, or *Mesue*, was a Christian, of the Sect of the *Jacobites*, born in the City of *Maridin*, on the River *Euphrates*. He learned Medicine and Philosophy in *Bagdad*, and was a constant Attendant on *Avicenna's* Lectures. He composed very useful Treatises on Potables, and another Work of the Composition of Medicines. He lived at *Cairo*, where he was in great Favour with the Caliph, and acquired very great Riches, as well as Reputation. He dy'd about the ninetieth Year of his Age, Anno Hegiræ 406. Christi 1015.

Thograi was not only a Physician, but a Philosopher, Rhetorician, Alchymist, Poet, and Historian. He was born in the City of *Ispahan* in *Persia*, and being a very accomplish'd Person, was promoted to the Dignity of prime Minister to Prince *Maschud*, Brother to the Soldan of *Asia*, in which Post he acquir'd immense Riches. But his Master raising a Rebellion against his Brother, was taken and imprison'd; and *Thograi*, being depriv'd of whatever he had acquir'd, was ty'd to a Tree, and shot to Death with Arrows, Anno Hegiræ 515. Christi 1121. Besides his historical and poetical Works, he left behind him a Book intituled *The Rape of Nature*, which treats of Alchemy.

Eſſeriph Eſſachali was descended from Mahomet, and born in the City of *Mazara* in *Sicily*. He was an excellent Philosopher, as well as Physician, and had not his Equal for Geography. He dy'd at *Ciudad* in *Andalusia*, Anno Hegiræ 516. Christi 1122. We have none of his Medicinal Works.

Ibnu Saigh was born at *Santa Maria* in *Andalusia*, his Ancestors were *Jews*. He was very well accomplish'd in Philosophy, as well as Medicinal Learning, and dy'd in the Year of the Hegira 550. of Christ 1155. at the Place of his Nativity, leaving nothing written in Medicine.

Ibnu Zobar, born in *Sicily*, was Physician to *Ibnu Habad*, the Rebel, and afterwards to his Son. Being involv'd in their Ruin, he had the good Fortune to be introduced into the Service of the King of *Morocco*. He never accepted a Fee from poor Men, or such as got their Living by their Hands, but never refused Presents from Kings or Princes. He bestowed many Gifts upon his Enemies, saying, that they hated him without a Cause, but only for Envy, and that he hoped to bring them to Repentance by his Beneficence. He dy'd in the ninety-second Year of his Age, Anno Hegiræ 564. Christi 1168. *Averroes* was one of his Auditors, and learned Medicine of him.

Ibnu Thofail, of a noble Family, was born in the City of *Seville* in *Andalusia*. His Family was ruined in a Rebellion, which induced him to apply himself to Study, whereby he became an extraordinary Proficient in Philosophy and Medicine, and had *Averroes*, *Rabbi Moſes the Egyptian*, and many others, for his Hearers. His Death happen'd Anno Hegiræ 571. Christi 1175. He is the same with *Abu Becr Ebn Thophail*, the Author of an ingenious and well-written Piece, publish'd by Doctor *Pocock*, in *Arabic* and *Latin*, under the Title of *Philosophus a. s. i. o. u. n. i. s.*, and printed at *Oxford* 1671. and since several times reprinted, and translated into other Languages.

Ibnu Zobar, or *Zor*, the Son of the foremention'd *Ibnu Zobar*, learned the Art of Medicine of his Father, and came to be Physician to *Manſor* the Caliph, and King of *Morocco*. He dy'd aged seventy-four at *Morocco*, Anno Hegiræ 594. Christi 1197. He composed many Pieces of Medicine, particularly one about the Medicine of the Eyes.

Ibnu el Baitar was born at *Malaga* in *Andalusia*, and, besides his Accomplishments in Philosophy and Medicine, was an extraordinary Herborist; and, to perfect his Knowledge of Plants, travell'd over *Africa*, and almost all *Asia*; and returning from *India*, by the Way of *Cairo*, was received into the Service of *Saladin*, the first of the Soldans of *Egypt*, after whose Decease he returned to his own Country, and there composed an excellent Work

on the Virtues of Herbs, on Poisons, and Metals, and on Animals, in three Books, digested in alphabetical Order. He died at *Malaga*, *Anno Hegiræ* 594. *Christi* 1197.

See the Article AVERROES.

Abulhasan Ibnu Haidor was a Native of *Fez*, a Philosopher, Physician, and Astrologer, was Physician for many Years to the Kings of *Fez*, and died of the Pestilence, *Anno Hegiræ* 818. *Christi* 1415. He left a Piece intituled *The Cure of the Plague*.

Abu Bahar Ibnu Chalfon, a Native of *Granada*, was a Philosopher, Physician, Astrologer, and an elegant Poet. He died in the Year of the *Hegira* 828. and of *Christ* 1424.

See ALBUCASIS.

See AVENZOAR.

An ACCOUNT of famous Physicians among the Jews, from J. Leo Afer.

Isaac, the Son of *Erram*, a Physician and Philosopher, was born in *Damascus*, studied at *Bagdad*, and was Physician to *Zaide*, Viceroy of *Africa*, who had another Physician; a Christian. The Viceroy happening to fall sick; whatever Medicine *Isaac* prescribed was condemn'd and rejected by the Christian; for which Reason *Isaac* forbore to attend his Master, and, being asked the Reason, said, "That the Disagreement of two Physicians over one Patient, was worse than a tertian Fever." He died *Anno Hegiræ* 183. *Christ* 799. He composed a Book on the Cure of Poisons.

Emram, the Son of *Isaac*, a Native of *Toledo* in *Spain*, was a Physician, Philosopher, and Astrologer. In his Time the King of *Spain* took the City of *Toledo*, where wanting a Secretary for the *Arabic*, *Emram* offer'd his Service, and was accepted. He was afterwards sent by the King to the *Moorish* Governor of *Seville*, to demand some Tribute; but speaking some Words, by which the Governor thought himself highly injured, he was order'd to be kill'd, *Anno Hegiræ* 387. *Christi* 997.

Haron, the Son of *Senton*, was of a very noble *Jewish* Family in *Fez*, and a Physician, Philosopher, and Astrologer. When he was a Youth, he enter'd himself into the Service of King *Habdalla*, who had a prime Minister of such Presumption as to take upon him to govern both King and Kingdom. *Haron* advised the Killing of him, and, after his Death, was taken into his Place: But the People of *Fez* having, on many Occasions, shewn a malecontent Spirit, the King appointed *Haron* for their Governor, which Post he enjoy'd seven Years. The King afterwards removing his Camp at an hundred Miles Distance, the Inhabitants of *Fez* made an Insurrection, and kill'd all the *Jews*; News of which being brought to the Camp, the Army rose against the King, and kill'd *Haron*, *Anno Hegiræ* 872. *Christi* 1467.

The greatest Revolution which ever happen'd in Physic, either with respect to Theory or Practice, was occasion'd by the Introduction of Chymistry into the Art. I shall not, in this Place, enter into Disputes concerning its Antiquity, as it is foreign to my present Purpose. I shall only observe, that the first Man who made any Metal, was the first Chymist; and this, History informs us, was *Tubal-Cain*, who is generally allow'd to be the same as the *Vulcan* of the Antients, who taught Mankind the Uses of Fire. The first Inhabitants of *Egypt*, in all Probability, brought the Art of making Metals with them from the East; and from this great Source of Learning it was convey'd to other Nations.

Whatever Experiments the Curiosity of the Antients may have led them into, with respect to the Transmutation of the baser Metals into Gold, we meet with no mention of Alchemy, either in this Sense or any other, till about the Middle of the Fourth Century, when *Julius Maternus Firmicus*, an Author of that Age, speaks of it as a thing well known. After him *Aeneas Gazeus*, who wrote at the Close of the Fifth Century, talks of it as no new Discovery. And in the Seventh Century *Georgius Syncellus* wrote professedly on the Subject, and was follow'd by a Multitude of *Greek*, *Arabic*, and *Latin* Authors.

Boerhaave thinks, very judiciously, that after the *Arabs* had begun to cultivate the Art of Chymistry, (including Metallurgy and Alchemy) the Metaphorical and Hieroglyphical Manner of Writing, which obtained among them, gave Rise to a Practice of calling the Means or Helps, made use of for bringing Metals to Perfection, by the Names of Medicines; the imperfect Metals, by the Name of sick Men; and Gold, by that of a sound, lively, healthy, durable Man: From whence the Ignorant at length fell into the Error of supposing, that these were to be understood in a literal Sense; especially upon finding the Impurities of the baser Metals call'd by the Name of a Leprosy, the most incurable of all Diseases. Hence first rose an Opinion, which has since been propagated far and wide, that the imperfect Metals might be transmuted into Gold, and the Bodies of sick Persons into sound ones, by one and the same chymical Preparation, to which they gave the Name of the *Philosophers Stone*, or the *Gift Azoth*, and call'd its Possessors *Adepts*. The Opinion seem'd confirmed, from a few simple Experiments of extracting medicinal Virtues from Drugs by Chymistry, which *Rhazes* gave the first Instances of; but which, in the Eleventh Century, *Avicenna* further illustrated, in a Description of the *Arabian Julab*, or distil'd Rose-water, and *Mesue* afterwards confirm'd more at large.

Hitherto we find Chymistry cultivated only amongst the *Arabians*; but in the Beginning of the Thirteenth Century, some successful Attempts were made by *Albertus Magnus*, a *German*, of *Swabia*, and *Roger Bacon*, an *Englishman*, born near *Ilchester* in *Somersetshire*, and commonly known by the Name of *Frier Bacon*, to introduce it into *Europe*. But, in the latter End of the Thirteenth Century, *Arnaldus de Villa Nova*, a *Frenchman*, contributed much more to the Introduction of Chymistry into Physic. He mentions Spirit of Wine, and Oil of Turpentine, with several other chymical Medicines, and specifies their Uses. He knew that his Spirit of Wine was capable of being impregnated with the Taste and Smell of any vegetable Substance; and this Knowledge was the Foundation of all compound Waters, which at present make so large a Part of the Shop Compositions, and which perhaps are generally of more Service to the Retailers of Medicines than to the Sick.

Raymond Lully, born at *Barcelona*, or, according to others, at *Majorca* or *Minorca*, in 1315. must consequently have been contemporary with *Arnaldus de Villa Nova*. This Author is one of the first who mentions an universal Remedy, that is, one calculated for the Cure of all Distempers.

The other Chymists who lived before *Paracelsus*, and were instrumental in making Chymistry subservient to medicinal Purposes, were *Johannes de Rupefissa*, *Isaac Hollandus*, *John Isaac Hollandus*, and *Basil Valentine*. It is not easy to fix the Time in which the last lived: I have, by Mistake, under the Article ANTIMONIUM, said, that he published his Treatise of Antimony about the Twelfth Century. *Helmont* endeavours to prove him elder than *Paracelsus* by a hundred Years: Some will have it, that he was born in 1394. and others say, that he flourish'd about 1415. He was a *Benedictine* Monk, and remarkable for first starting the Notion of the chymical Principles, Salt, Sulphur, and Mercury. The Sal Volatile Oleosum, which *Sylvius de la Boe* had in so great Esteem,

Esteem, and which he had the Credit of inventing, as well as many other Secrets boasted of as more modern Discoveries, was originally described by *Basil Valentine*. It was this Author who first used Antimony internally, and enrich'd Medicine with many Preparations of this Mineral. It is said, that having thrown away some Antimony, which he had used in the Fusion of Metals, he observed some Swine, who had accidentally eaten it, to purge considerably; and that, very soon after this, they became sleek and fat. This gave him the Hint of trying what it would do in human Bodies; with this View he made a Multitude of Experiments with it, as appears by his Treatise, intitled *Currus Triumphalis Antimonii*, and determin'd its Efficacy. After him *Paracelsus*, *Mathiolus*, *Angelus Sala*, *Jacobus Launeus*, and many other learned Men, pleaded the Cause of Antimony, and held it in great Esteem. There were, however, others who look'd upon the internal Use of Antimony as most pernicious, amongst whom was *Jacobus Grevinus*, who in 1566. publish'd a Treatise, in which he represents Antimony as a most dangerous Poison, and advises the Magistrates to prohibit the Sale of it, as they had done that of Quicksilver and Orpiment. His Council was taken, and the medicinal Use of Antimony was forbid the same Year, by a Decree of the Faculty of Physic at *Paris*, which was confirmed by one of the Parliament; and in 1609. *Paulmier*, a Physician of *Paris*, was expel'd the Faculty for using it in his Practice. In the Year 1637. the same Faculty allow'd its Use as a Cathartic; and in 1666. the free Use of it was permitted by the Parliament of *Paris*, in consequence of an Opinion of the Faculty of Physic given in its Favour.

Before I proceed to the History of *Paracelsus*, and the Innovations he made in Physic, it will be necessary to give some Account of a Distemper which appear'd in *Europe*, for the first time, a little before his Birth; and of another which was introduced, or at least began to be common, a Year or two after he was born. I mean the Sweating Sickneſs, and the Venereal Disease. Dr. *Freind* says, "That the Sweating Sickneſs was originally a Native of our Island; and, upon this Account, it is the less strange, that it should be the most accurately described by one of our own Countrymen, the great and learned *Caius*. It began at first in 1483. in *Henry* the Seventh's Army, upon his landing at *Milfordhaven*, and spread itself in *London*, from the 21st of *September* to the End of *October*. It return'd here five times, and always in Summer, first in 1485. then in 1506. afterwards in 1517. when it was so violent, that it kill'd in the Space of three Hours; so that many of the Nobility died; and of the vulgar Sort, in several Towns, half often perish'd. It appeared the fourth time in 1528. and proved mortal then in the Space of six Hours: Many of the Courtiers died of it, and *Henry* the Eighth himself was in Danger. In 1529. and only then, it infested the *Netherlands*, and *Germany*, in which last Country it did much Mischief, and destroy'd many; and particularly was the Occasion of interrupting a Conference at *Marpurgh*, between *Luther* and *Zuinglius*, about the Eucharist. The last Return of it with us was in 1551. In *Westminster* it carried off 120 in a Day; and the two Sons of *Charles Brandon*, both Dukes of *Suffolk*, died of it. At *Stretwbury* particularly, where our Author *Caius* resided, it broke out in a very furious Manner. The Description he gives of it is terrible, like the Plague of *Athens*." See *SUDOR ANGLICUS*.

With respect to the Venereal Disease, I shall not enter into a long Detail of the Arguments for and against its Antiquity. Upon the Whole, it seems to be certain, that, long before this Æra, Physicians had observed most or all of the Symptoms peculiar to the Venereal Disease; but these were rare Cases, and do not appear to have occur'd often. Upon its Importation however from *Hispaniola*, where it was endemial, into *Europe*, it made so rapid a Progress, and spread so universally, that, in a very few Years, it became the most profitable Distemper the Practitioners of Physic were ever acquainted with.

The first Instances we have upon Record of Poxes imported from *America*, were in one *Boyl*, a *Spanish Benedictine* Monk, who certainly had satisfied his Curiosity, of which his Order is reported to have a great deal in this way, with a Female of the new World; and in *Peter Margarit*, a noble *Catalonian*. This happened in 1494; but as *Columbus* had, the Year before, returned with several Mariners and Soldiers from *Hispaniola*, it is highly probable, that some of these might be infected, and that they served in the *Spanish* Troops which soon after defended *Naples* against the *French*. These *Spanish* Soldiers are said to have communicated the Infection to the *Neapolitan* Women, and these to the *French* Soldiers; who, at their Return, brought it into their own Country, whence it was spread over all the known World; which is the less extraordinary, as this Accident happened to an Army, and that of a Nation always remarkable for Gallantry, two Circumstances very favourable to its speedy Propagation.

This Disease is not more remarkable itself in the History of Physic, than for giving Occasion to the Introduction of many Remedies into Medicine, either unknown before, or differently applied. Amongst these are *Guaiacum*, which began to be used about 1517; *China Root*, which was first known in *Europe* about 1535; and *Sarsaparilla*; but the most celebrated of all was *Mercury*, an *Herculean* Remedy, and one which has laid the Foundation of great Improvements in the Art of Healing. This was applied externally for the Cure of the Venereal Disease, soon after it appear'd in *Europe*, that is, before 1498. The Hint was probably taken from the *Arabians*, and some of their Transcribers, who directed its Use in Unguents to kill Lice, and in cutaneous Foulnesses, long before the Appearance of the Venereal Disease; and as this Distemper was attended with Defecations of the Skin, the Probability of its being serviceable in this Distemper was very obvious. I have said, under the Article *Anatomy*, that *Jacobus Berengarius Carpenſis* was the first who made use of mercurial Ointments in the Cure of the Venereal Disease: *Astruc*, however, will not allow this, but says, that he and *Johannes de Vigo*, his Contemporary, were great Promoters of its Use, and contributed much to establish its Reputation, by using it rationally, and with great Success. These two Authors flourished in the very Beginning of the Sixteenth Century; and the latter was the first who is known to have administer'd any mercurial Preparation internally. What he recommends is the *Mercurius Præcipitatus ruber*, and that in a considerable Dose, in the Plague and Colic. 'Tis highly probable, that this, and all other chymical Preparations of *Mercury*, were originally made by the Alchemists, with a View of fixing this Substance, and converting it into Gold; and that, upon failing of the End proposed, they were encouraged to try what it would do internally, by the Success they had observed of its external Application.

I shall now proceed to give an Account of *Paracelsus*, and the great Innovations he made in Physic, after having observed, that he found Physic in a very deplorable State.

If subtil Disputations would have cured Distempers, if Phrases without Meaning, and Argumentation without Instruction, could have reliev'd the Sick, the *Galenical* Doctrine, and *Arabian* Practice, then only in vogue, would have rendered all farther Improvements impossible. But it happened, very fortunately for *Paracelsus*, that Physic was, at the Time he appeared, reduced by the Schools to Chicanery, reasoned almost out of the World, or, at least, disputed into an infinitely worse State than that in which *Hippocrates* left it. 'Tis not, therefore, surprising that *Paracelsus* should be able to make the Figure he did in the World, furnished as he was with many singular Advantages over the Generality of his Contemporaries.

Aurculus,

Aureolus Philippus Paracelsus Theophrastus Bombast de Hohenheim was the Son of *Wilhelmus Hohenheim*, a learned Man, and Licentiate in Physic, tho' a slender Practitioner, but possessed of a noble Library, being himself the natural Son of a Master of the *Teutonic* Order. He was born in the Year 1493. at a Village in *Switzerland* called *Einsidlen*, which signifies a Village or Desert, about two *German* Miles from *Zurich*, where he got the Appellation of *Eremita* or *Hermit*, which *Erasmus* gives him in a Letter.

At three Years of Age he is said to have been mutilated, and made an Eunuch, by a Sow. Accordingly we always find him a bitter Enemy to the Women; and he is, perhaps, the only great Man upon Record without a Passion for their Sex; tho' his Picture, as taken from the Life, represents him with a Beard. He was instructed by his Father in Physic and Surgery, wherein he made great Proficiency; but, as he grew up, he was captivated with the Study of Alchemy, which occasioned his Father to commit him to the Care of *Trithemius*, Abbot of *Spanheim*, a Man of great Renown in those Days, from whom having learned many Secrets, he removed to *Sigismund Fuggerus* of *Schwatz*, a famous *German* Chymist, who, at that Time, partly by his own Industry, and partly by a Multitude of Servants and Operators, retained for the Purpose, made daily Improvements in the Art. And here, he assures us, he learned spagiric Operations effectually; after which he applied himself to all the most eminent Masters in the Alchemical Philosophy, who concealed nothing from him, and from whom, as he himself relates, he learned his Secrets.

But not resting here, he took a Journey to all the Universities of *Germany*, *Italy*, *France*, and *Spain*, in order to learn Physic: after which he visited *Prussia*, *Lithuania*, *Poland*, *Walachia*, *Transylvania*, *Croatia*, *Portugal*, *Illyria*, and the other Countries of *Europe*, where he applied himself indifferently to Physicians, Barbers, old Women, Conjurers, and Chymists, both good and bad; from all which he gladly picked up any thing that might be useful; and thus enlarged his Stock of sure and approved Remedies. He also learned from *Basil Valentine's* Writings the Doctrine of the three Elements, which, concealing its Author's Name, he adopted as his own, and published under the Appellation of Salt, Sulphur, and Mercury.

In the twentieth Year of his Age, making a Visit to the Mines in *Germany*, he travelled into *Russia*, where being taken Prisoner, on the Frontiers, by the *Tartars*, he was carried before the Cham, and afterwards sent, with that Prince's Son, on an Embassy to *Constantinople*; where, in his twenty-eighth Year, he tells us, he was let into the Secret of the Philosophers Stone. He was also frequently retained as Surgeon and Physician in Armies, Battles, and Sieges.

He set a high Value on *Hippocrates*, and the antient Physicians; but despised the Scholastic Doctors, and, above all, the *Arabs*. He made great Use of Remedies prepared of Mercury and Opium, wherewith he cured the Leprosy, Venereal Disease, Itch, slight Dropsies, and other Infirmities, which, to the Physicians of those Times, (who were ignorant of Mercury, and afraid of Opium, as cold in the fourth Degree) were utterly incurable.

By these Cures he grew daily more celebrated and daring; especially after recovering the famous Printer *Probenius* of *Basil*, whose Case appears to have been a violent Pain in his Heel, which, upon *Paracelsus's* Treatment, removed into his Toes, so that the Patient could never stir them afterwards, tho' he felt no Pain, and in other respects grew well; but soon after died of an Apoplexy. By this means he became acquainted with the great *Erasmus*, and was well esteemed by the Magistracy of *Basil*, who, giving him a plentiful Salary, made him Professor in the Year 1527. where he continued to teach philosophical Physic two Hours every Day; sometimes in *Latin*, but more frequently in *High Dutch*. Here he read Lectures to explain his own Books *De Compositionibus*, *De Gradibus*, and *De Tartaro*; which, according to *Helmont*, abounded in idle Drollery, and contained little solid Sense. Here, in a solemn manner, seated in the Chair, he burned the Writings of *Galen* and *Avicenna*; declaring to his Audience, that he would even consult the Devil, if God would not assist him, which is conformable to his express Declaration, in several Places of his Works, that no one need scruple consulting the Devil, to get Secrets of Physic from him.

Here he procured many Disciples, with whom he lived in great Intimacy: Three of these he maintained in Diet and Cloaths, and instructed in several Secrets; tho' they afterwards ungratefully deserted their Master, and even wrote scandalous Things of him, administering, with great Indiscretion, the Medicines he had taught them, to the great Disadvantage of those who employed them. He also retained Surgeons and Barbers in his Family, to whom he communicated useful Secrets; but all of them soon after left him, and turned his Enemies. His only faithful Disciples were Dr. *Peter*, Dr. *Cornelius*, Dr. *Andrew*, Dr. *Ursinus*, the Licentiate *Pangratius*, and Master *Raphael*, whom he speaks of with Commendation.

During his two Years Residence here, he cured a noble Canon of *Liechtenfels*, who had been given over by the Physicians, of a violent Pain at the Stomach, with only three Pills of his Laudanum. The sick Canon had promised him 100 *French* Crowns for the Cure; but finding it so easily effected, he refused to pay, alledging, with a Jest, that *Paracelsus* had given him but three Mice-turds. Upon this *Paracelsus* cited him before a Court of Justice, where the Judge, not considering so much the Excellency of the Art, as the Quantity of Labour and Cost, decreed him a trifling Gratification; with which *Paracelsus* was so exasperated, that, loading them with Reproaches of Ignorance and Injustice, he rendered himself in some measure guilty of Treason; and thus thought best to quit the Court, and make haste home: From whence, by the Advice of his Friends, he privately withdrew out of the City, leaving his whole Chymical Apparatus to *Joannes Oporinus*. After this he continued rambling two Years thro' the neighbouring Parts of *Alsatia*, accompanied by *Oporinus*, and, in the Course of a dissolute Life, wrought many extraordinary Cures, as we find related by *Zwinger*, who lived at the same time at *Basil*, and often heard the Account from *Oporinus* himself.

This *Oporinus*, who had been for some time his Servant and Amanuensis, was a Person of much Learning, well skill'd in the *Greek* and *Latin* Tongues, who, possessed with the vain Expectation of attaining *Paracelsus's* Secrets, left his own Family, and travelled about with him for two whole Years, without learning any one Thing, till, wearied out, he grew wise, and, quitting *Paracelsus*, he returned to *Basil*.

It happened, one Evening, that *Paracelsus* was called upon to visit a Countryman dangerously ill, near *Colmar* in *Alsatia*; but, being set in for a Drinking-bout with ordinary Company, he deferred visiting the Patient till next Morning; when, entering the House with a furious Look, he ask'd, If the sick Person had taken any Physic? as intending to administer some of his Laudanum. The By-standers answer'd, He had taken nothing but the Sacrament, as being at the Point of Death: At which *Paracelsus*, in a Rage, replied, If he has had recourse to another Physician, he has no Occasion for me; and ran immediately out of Doors. *Oporinus*, struck with this Piece of Impiety, bid *Paracelsus* the last Adieu; fearing the Barbarity of his otherwise loved Master should some time fall on his own Head.

From this Time *Paracelsus*, having forgot his *Latin*, continued wandering from Place to Place, always incohabited, never changing his Cloaths, nor so much as going into a Bed, till the Month of *September* 1541. when,

being taken ill at a public Inn at *Salzburg*, he died, after a few Days Sickness, in the 47th Year of his Age; tho' he had promised himself, by the Use of his Elixir, that he should live to an Age equal to that of *Methusalem*.

Thus far *Boerhaave*, in his Chymistry. Dr. *Shaw*, in his Notes to this Passage, proceeds to make the following Remarks.

No Wonder *Paracelsus*, in his Time, was esteem'd an excellent Physician and Surgeon; for Medicine was then in a low Condition: The Practice, and the very Language, was all *Galenical* and *Arabian*. Nothing was inculcated but *Aristotle*, *Galen*, and the *Arabs*: *Hippocrates* was not read; there was even no Edition of his Writings, and scarce was he ever mention'd. Their Theory consisted in the Knowledge of the four Degrees, and the Temperaments, and their whole Practice was confined to Bleeding, Purging, Vomiting, and Clysters.

What contributed still more to his Reputation, was his becoming acquainted with the Excellency of Mercury in the Venereal Disease, which had then newly broke out, and spread itself over *Europe*: And probably he had the Hint of this from *Jacobus Carpus*, a celebrated Anatomist and Surgeon at *Boulogne*, who alone had been Master of the Cure, which was effected by means of Mercury, applied so as to raise a Salivation.

'Tis probable, that the Bulk of the Pieces published under this Author's Name are not his; but that his Followers chose to usher in their Performances under that Cover. In Effect, they are so many, and so different from each other, that it is next to impossible they should all come from the same Hand: And yet, besides the three Books which he lectured upon in Public, there are some others which should seem to be genuine; such is that *de Peste*, of the Plague; that *de Mineralibus*, of Minerals; that *de Vita longa*, of long Life; and the *Archidoxa Medicinæ*, which was published by *Bodenslyn*, while *Paracelsus* was living, or at least soon after his Death.

This Work is call'd *Archidoxa Medicinæ*, as containing the principal Rules and Maxims of the Art. Nine Books thereof were published at first; and the Author, in the Prolegomena to them, speaks thus:

"I intended to have publish'd my ten Books of *Archidoxa*; but finding Mankind unworthy of such a Treasure as the Tenth, I keep it close in my Occiput; and resolve never to bring it thence, till you have all abjured *Aristotle*, *Avicenna*, and *Galen*, and have sworn Allegiance to *Paracelsus* alone."

However, the Book did at length get abroad, tho' by what means is not known: It is confessedly an extraordinary Piece, and may be ranked amongst the principal Productions that have ever appear'd in Chymistry. Whether or no it be *Paracelsus's*, we will not affirm; but there is one Thing speaks in its Behalf, which is, its containing many Things which have been since cried up for great Nostrums; and *Van Helmont's* Lithontriptic and Alcahest are apparently taken hence. The following Passage of *Helmont* has occasion'd much Speculation: "To distil the volatile Spirit of Sea-salt, in order to dissolve the Stone in the Bladder, digest Sea-salt for a Month with Juice of Horse-radish, and then distil the Whole: What rises is the Spirit of the Salt, of singular Efficacy in dissolving the Stone, either in the Bladder or Kidneys." How *Helmont* came to know, that Sea-salt would ferment with Radish-juice, is surprising; there being no Hint of the Thing in any of his other Writings: But our Wonder will cease upon reading the Process in express Terms, in the tenth Book of the *Archidoxa*. And the whole Book of the *Alcahest* is apparently taken from the same.

Amongst the genuine Writings of *Paracelsus* are likewise reckon'd that *de Ortu Rerum naturalium*, *de Transformatione Rerum naturalium*, and *de Vita Rerum naturalium*. The rest are spurious, or very dubious at best, particularly his Theological Works.

With respect to his Merits, as to Medicine and Alchemy, it must be own'd, that an arrogant assuming Air infected all his Writings, as well as his Actions: It was common with him to promise mighty Things, with complete Assurance, upon slender and unequal Grounds. A strong Instance of his Weakness in this Kind is his undertaking, by the mere Use of his Elixir, to prolong a Man's Life to the Age of *Methusalem*; and deliberating with himself to what Period he should protract his own. This argues his trusting to Imagination more than Experience; for, as he died a young Man himself, it is certain, he could not have Experiments sufficient to warrant any such thing; nor did he speak of his own Knowledge, as a Physician ought to do, but purely out of Caprice.

We know not how it is, but the Body of Chymists, both of his own and our Times, have complimented *Paracelsus* with the Knowledge of the universal Remedy, and he himself is at the Head of the Opinion: He swears by his own Soul, and calls every God in Heaven to witness, that with one single Remedy, prepared from Metals, he was able to cure all Diseases, be they what they would. But *Helmont*, who knew as much of *Paracelsus* as any Man, does not believe a Word of it; and, tho' he is always commending him, warns us not to trust him; adding, that his Writings are full of Babble. His own History affords no great Proofs of the Thing, nor have we any competent Testimonies of other Writers. But what effectually overthrows his Pretensions to such a Remedy, is his own dying at an immature Age.

His real Merit consisted, (1.) In being well skill'd in Surgery, and practising it with great Success. (2.) In understanding the common Practice of Physic, as well as his Contemporaries. (3.) In being alone Master of the Powers, Preparations, and Uses of Metals. (4.) In having the Use of Opium to himself, and working wonderful Cures thereby. And (5.) in being well acquainted with the Virtues of Mercury, in an Age when perhaps only he and *Carpus* knew any thing of the Matter.

As to his being possess'd of the Philosophers Stone, there are no sufficient Proofs of it, and many strong ones to the contrary.

Less I should be thought to have contradicted myself with respect to Opium, which I before said was introduced into Practice by the Empirics, I must remark, that the *Galenical* Physicians had utterly rejected its Use before the Time of *Paracelsus*, on a Supposition of its being too cold to be used with Safety.

As to the System of *Paracelsus*, the first of his Principles relates to the Attention the Physician ought to pay to the Analogy he supposes between the great World, and the little World, or the Body of Man. He did not confine himself to the Comparisons which had been, and still are, made between these two, but attempted to discover in this Analogy things infinitely more mysterious. In Man, for Instance, he discovers the Motions of the Stars, the Nature of the Earth, the Water, and the Air, all Vegetables and Minerals, all the Constellations, and the four Winds. He asserts in another Passage, that the Physician ought readily to know what in Man is called the Dragon's-tail, the Ram, the Polar Axis, the Meridian, the Rising and Setting of the Sun; and if he is ignorant of these things, continues our Author, he is good for nothing. From the same Author also, and his Followers, springs the Opinion of a pretended and imaginary Agreement between the principal Parts of Man's Body with the Planets, as of the Heart with the Sun, of the Brain with the Moon, of the Spleen with *Saturn*, of the Lungs with *Mercury*, of the Kidneys and Testicles with *Venus*, of the Liver with *Jupiter*, and the Gall with *Mars*; as there are also seven Metals or Minerals, which agree with these seven Planets. In another Pas-

sage *Paracelsus* assures us, that in our Limbus, that is, the human Body, are the Heavens, the Earth, and the Properties of all Animals; and he elsewhere asserts, that a true Physician must be able to say, *This is a Sapphire in the Body of Man, this Mercury, this a Cypress, and this a Wall-flower*. He also establish'd an Analogy or Relation between Diseases and Plants: Hence he speaks of a Disease which he calls *Morbus Acorinus*, the Disease of *Acorus*. To this he adds some others which derive their Names from other Plants, or Parts of Plants; from the Anthera, for Instance, from the Pulegium, from the Melissa, from the Sabina, from the Terebinthina, from the Siler Montanum, and from the Helleborus.

With respect to the first Matter, he thought that all created Things sprung from one single Principle, or one single Matter. This Matter he calls the Grand Mystery. This, says he, is not any thing perceptible, any thing sensible, any thing that appears under a particular Form, or which has any Property or Colour, or which partakes of an elementary Nature. The Sphere of this Grand Mystery is extended as wide as the Region of the Heavens. This same Mystery is the Mother of all the Elements, and the Grandmother of all the Stars, and all Creatures; for all created Objects are born of the Grand Mystery, just as a Child is of its Mother. In a Word, from this Grand Mystery, Substance, Matter, Form, and Essence, have deriv'd their Origins, not successively, but by a single Creation.

From this first Matter, according to *Paracelsus*, and his Followers, sprung, among other things, the Seeds of Animals, Vegetables, and Minerals; and all these Seeds have from the Beginning lay concealed in the Bosom of this same Matter, as it were in Darkness, or in what he calls the Abyss, from which they were drawn by Generation.

According to this Idea, the Followers of *Paracelsus* believe, that what is commonly called Generation, consists only in the Exit or Passage of each Seed, or of each of the Individuals they contain, from Darkness to Light: So that, invisible as they were, tho' they always existed, they at last become visible. Upon this Footing, what is born To-day is not properly new, tho' it appear to be so; since it had a previous Existence in the Abyss from which it springs. In like manner a Thing which apparently corrupts, does not for that Reason perish, or cease to be, but only returns to the original Source from which it was drawn, after having perform'd the Functions for which it was destin'd. The Followers of *Paracelsus* found this Sentiment upon a Passage of *Hippocrates*, where that antient Physician says, *That nothing in Nature perishes, as also that nothing new is produc'd*, that is, nothing is brought into Being which did not exist before; but these Seeds cannot spontaneously leave the Places where they originally existed, and would not unfold themselves as they ought, if they were not assisted by a celestial Power or Virtue included in them, and which *Paracelsus* calls *Archeus*, that is, as his Commentators explain the Word, an Architect Spirit. This *Archeus* separates the various Elements, and all the Things they contain, placing each Object in its proper Place; and as for the Bodies of Animals, it in them separates what is pure from what is impure, just as Fire or Antimony purifies Gold. It happens indeed, that it operates imperfectly; and it is for this Reason, that Men are now-and-then afflicted with some Diseases; but, for our Comfort, these Diseases are not mortal like others. *Paracelsus* does not own for true Elements the four generally agreed upon and received as such in the Schools, that is, Fire, Air, Water, and Earth. He says, That these are lifeless Bodies, which only possess inefficacious and impotent Qualities, which can produce nothing, and are merely passive. He ascribes a much greater Energy to three Principles, which, he says, are found in all natural Bodies, and even in the Elements, and in each of them in particular. These Principles are Salt, Sulphur, and Mercury.

In order to explain, in some measure, what these three Principles are, he says we need only look on Wood when burning. That which burns is Sulphur, that which rises in Smoke is Mercury, and that which is reduc'd to Ashes is Salt. We find something of these three Principles in the Works of *Isaacus Hollandus*, and *Basil Valentine*, so that *Paracelsus* does not seem to have been the Inventor of this Notion. We shall not here attempt to explain the Difference which he and his Followers make between the visible and invisible Elements, since they themselves do not seem to understand each other with respect to that Point. Besides the ordinary Elements and Principles, *Paracelsus* thought there was in all natural Bodies something of a celestial Nature, which he calls *Quintessence*, and which he describes thus. "The Quintessence, says he, is a Substance which is corporeally drawn from all Bodies which increase, and from every thing that has Life, and this Substance is disengag'd from all Impurity and Mortality; it is of the highest Subtlety, and separated from all the Elements." He adds a little afterwards, that "this Quintessence is not of a different Nature from the Elements, because it is itself an Element." Upon the same Subject he afterwards says something in which he appears to contradict himself, or which is at least very hard to be understood. He also calls this Quintessence by the several Names of the Philosophical Tincture, or Philosophers Stone, the Flower, the Sun, Heaven, and ethereal Spirit. "This Medicine, says he, in *Lib. de Tinctura Physicorum*, is an invisible Fire, which devours all Diseases. "I myself have, with this Remedy, cur'd the Small-pox, the Leprosy, the Dropsy, the Colic, the Apoplexy, malignant Ulcers, the Cancer, Fistulas, Scirrhuses, and all internal Disorders." He brings a very singular Example, to shew the marvellous Virtues of this Medicine. "Some, says he, having made this Tincture, and not knowing how to use it, neglected it; upon which it happen'd, that some Poultry, finding it in their Way, eat it, or drank it; and their Feathers being before cast, they were forthwith renew'd, a Circumstance which convinc'd the People, that this Phenomenon was the Effect of the Medicine."

One would think, that if *Paracelsus* had been Master of this universal Remedy, he had no Occasion to seek for others. *Severinus*, one of his principal Followers, says, it were to be wish'd, that such a Thing could be found; but confesses, that very few have had that Advantage. Perhaps his Master would not be much wrong'd, if we affirm'd of him, that he knew little more of this Matter than others. However, his Disciples have not adher'd to this universal Remedy, but acknowledge the Use of particular Medicines, of which they have proposed a large Number. They affirm, that as each Species of Disorder derives its Origin from a particular Seed, so there is a secret Remedy appropriated to each of them; and they talk of this Remedy, as if it had Intelligence, knew what it did, or was even more skilful than the Physician who prescrib'd it. When *Paracelsus* was ask'd, Why his universal and particular Remedies, which were both infallible, did not produce their design'd Effect, and prevent Death? He answer'd, That there was a Necessity for submitting to Destiny, which was irresistible. It was undoubtedly for this Reason that this Chymist was not able with all his fine Secrets, which he calls *Magnalia Dei*, to find the means of curing himself of the Gout, and some other terrible Disorders, which cut him off in the forty-seventh or forty-eighth Year of his Age.

When in some other Passages *Paracelsus* speaks of the Seeds of Diseases, he establishes two principal Kinds of them: The one he calls *Iliastrum*, and the other *Cagalstrum*. The former draws its Origin from a Substance which exists from the Beginning, as Apples, Pears, Nuts, and other Fruits, which all spring from the particu-

lar Seeds destin'd to produce them. The Diseases depending on the first Kind are the Dropsy, the Gout, and the Jaundice. The second Kind proceeds from a Corruption of something, and the Plague, the Pleurisy and Fevers, are the Consequences of this Corruption. *Paracelsus*, and his Followers also, talk of the *Iliastrum* and *Cagastrium*, with respect to the equivocal Generation of Rats, which they believe to be sometimes generated by Corruption, and sometimes by the Seed of their Parents. The former of these is called a Generation *ex Cagastro*, and the latter a Generation *ex Iliastro*.

In other Passages he considers the Causes of Diseases under other Relations. These Causes he calls *Entia*, or Beings, and establishes five Kinds of them. The first of these Beings is *Ens Dei*, or God himself, who inflicts Diseases upon Mankind, as he himself pleases. The second he calls *Ens Astrale*; because he believ'd, that several Diseases proceeded as well from the Stars in Heaven, as from those in Man. The third, which he calls *Ens naturale*, relates to those Diseases which proceed from some Defect of Nature. The fourth of these Beings is *Ens spirituale*, or *Pagocum*, to which *Paracelsus* refers those Diseases which are the Effects of our own Imaginations, or those of others acting upon us; and under this Kind are comprehended the Diseases, which proceed from Witchcraft or Inchantment. The fifth and last Being is called *Ens veneni*, and comprehends all Poisons, whether natural or artificial.

Paracelsus will, farther, have all Diseases to proceed from what he calls *Iliadus*, which is, when any Separation or Corruption happens in the Body. *Petrus Severinus*, one of the most celebrated of the Followers of *Paracelsus*, affirms, that what *Hippocrates* call'd *Orcus*, and what others mean by *Nox Orphei*, and *Abyssus*, are the same with the *Iliadus* of *Paracelsus*.

Our Author, at last, passing from the general to the particular Causes of Diseases, affirms, "That the human Body is nothing but Sulphur, Mercury, and Salt; and that in these three Things, which he calls the three first Substances, Health and Diseases consist. 'Tis, continues he, in these three Things alone that we must look for the Causes of Diseases, and not in the Humours, or their Qualities, about which the Physicians make so great a Noise." A little after he adds, "That all Diseases depend upon these three Things, and not upon the four Elements." He also affirms, that we must not have a Regard to Constitutions, and to the four Humours, as those have done, who have spread so much Obscurity over Medicine. A Disorder, adds he, is either hot or cold; but this Heat or Cold are not the Causes, but only the Signs, of the Disease. When a Man has his Forehead hot, his Head and his whole Body inflamed, his Urine red, and his Pulse frequent, these are only the Signs of his Disease; but its Causes must be sought for elsewhere. In a Colic, for Instance, proceeding from Constipation, the Patient is afflicted with violent Belly-achs, a great Burning, accompanied with Thirst, Vomitings, and sometimes a Palsy; but when the Constipation is removed, all the Accidents or Symptoms forthwith cease. Thus again, in a Case of the Stone in the Bladder, the Symptoms accompanying that Disorder cannot be remov'd, without removing the Stone. We must not, in this Case, use either hot or cold Medicines; neither must we talk of Humours and Constitutions; the Knife alone can remove the Cause, the Knife is the only Arcanum or Secret for the Stone.

Paracelsus enlarges upon the Nature of those Diseases which are produc'd by the three Substances already mention'd, and considers the Manner in which they happen. On this Occasion he observes, first, with respect to Mercury, that the Kind which is in the Bodies of Animals, and which has a great Affinity with common Mercury, or Quick-silver, by its Volatility produces Madness, Mortifications of the Ligaments, and Tremblings; and that if to this Volatility a certain Degree of Acrimony is join'd, or if the Mercury is too much spiritualiz'd, then Madness, Phrensy, and Delirium, are produc'd.

He adds, That these Disorders are produc'd by the Spirit of the Mercury, which, when rising, and seeking for an Exit, wounds the Brain, and particularly those Parts of it which are the Seats of Memory and Judgment. If this Spirit in descending penetrates to the Nerves, and strongly adheres to the Brain, it then produces the Apoplexy; and, if it falls on the hinder Part of the Neck, it gives Rise to a Palsy. But if it becomes cold in its Course, it produces Tremblings of the Hands and Feet, or of the Head alone. It also occasions Lethargies, and Distortions of the Mouth and Eyes.

The Disorders produc'd by Sulphur are the various Kinds of Fevers, Impostumations, or Phlegmons, and the Jaundice. But if the Salt should be separated from the Sulphur, the later of these, becoming putrid, falls upon the Breast, and produces a Pleurisy. In the Stomach and Liver it produces Fevers; in the Head, the Megrim and other Disorders, as also Pains of the Eyes, the Teeth, and Ears.

Several Disorders also derive their Origins from Salt, and, among others, the Colic. From the same Principle proceed the Stone and Gravel, and other Concretions form'd in the Veins and Cavities of the Body, as also the Gout of the Hands and Feet, and the Sciatica. The Cause of these Disorders is the Spirit of the Salt, which mixes with the Body of the Salt, and coagulates in the Bladder, the Kidneys, and the Joints. Salt also, whenever it is dissolv'd, produces Fluxes of the Belly; but when it is indurated and coagulated, it produces Indurations and Obstructions, which are remov'd by dissolving and fusing the Salts which occasion them. But if the Salt should be too much subtiliz'd, it produces Eruptions, the Itch, and other cutaneous Disorders. The Erysipelas, malignant Ulcers, and the Cancer, proceed from the same Origin. And lastly, if the Salt is too strong, it produces the *Ignis Persicus*, and terrible Inflammations. These three Principles, both within and without the Body of Man, have each their different Species, which also produce different Kinds of Diseases. Vitriol, for Instance, which is classed among the Salts, produces a Kind of Erysipelas. In another Place he tells us, that the peccant Matter of Fevers, in general, is no more than Sulphur and Nitre; for which Reason *Paracelsus* would have a Fever defin'd a Disease arising from *Sulphur and Nitre* set on Flame. He elsewhere affirms of intermittent Fevers in particular, that they proceed from a Motion of Nitre, which first produces Cold, and then Heat.

Besides the Causes of Diseases drawn from the three Principles of Salt, Sulphur, and Mercury, *Paracelsus* sought for others deriv'd from *Tartar*, and to which he ascribes almost all the same Effects he had done to the former, and several others besides. But we must here observe, that he was probably the Inventor of the Name in *Latin*, *Tartarum*, and which is nothing but that acid and hard Substance, as, he elsewhere tells us, concreted on the Sides of Wine-casks, whereas the Lees subside to the Bottom. He maintains, that the Stone of the Bladder, and the Gravel of the Kidneys, are generated or produc'd by what he calls *Tartar*, the Reason of which Name he gives us in the following manner.

I call, says he, the Stone, a Disease arising from *Tartar*, (*morbis Tartareus*) because of its Affinity to the true *Tartarus*, or Place of Punishment feign'd by the ancient Poets. Now this *Tartar* is so called, because it contains an Oil, a Water, a Tincture, and a Salt, which inflame and burn the Patient, just as the Fire of Hell would do. Our Author, in his usual chymical Cant, gives still another Name to the Stone, which is, *Ductech*.

With

With respect to the Signs of Diseases, we find very little in the Works of *Paracelsus*. In some Passages he briefly mentions them; and in others testifies but a small regard for them. He establishes various Kinds of Pulses, which have all a Relation to the several Planets. There are, according to him, two Pulses in the Feet, which are ascrib'd to *Saturn* and *Jupiter*; two in the Neck, which depend upon *Venus* and *Mars*; two in the Temples, which are regulated by *Luna* and *Mercurius*; and the Pulse which is under the Influence of the Sun, is in the Left Side under the Heart. Hence it follows, says he, that if the Pulse beats quicker than usual, the seven principal Members suffer, that is, the Heart, the Brain, the Liver, the Gall, the Kidneys, the Spleen, and the Lungs. If any of these Members in particular is oppress'd by the Disorder, the Pulse beats more faintly, because the Air or Spirit of Life does not find a free Passage to it.

Paracelsus is more full and copious upon Urine, as may be seen in what he has wrote concerning the Judgments drawn from Urines. Urine, says he, is a dissolv'd Salt, with a Mixture of Sulphur and Mercury. We shall not here enter upon a Detail of the several Signs he draws from the Urine, in order to judge of the Natures and Consequences of Diseases. A Knowledge of this Kind must undoubtedly be of the last Consequence, if what *Jo. Rhrenani*, in his *Urocritorium Chymiatricum*, asserts, is true; which is, that every good or bad Circumstance, with respect to the Termination of a Disease, is clearly, and, as it were, in a Glass, discover'd in the Urine.

We have already observ'd, that the most celebrated of the Followers of *Paracelsus* frankly confess'd, that the Quintessence, or universal Remedy, mentioned by their Master, and of which he boasted so much, was something very rare. This Circumstance oblig'd both *Paracelsus*, and his Followers, to seek after several particular Remedies which they have propos'd. One of the Means which they say ought to be used in discovering these Medicines, is to observe what they call'd the Signatures of Things. They believed that certain Differences, with respect to the Colour, the Figure, and other external Marks in Animals, Vegetables, and Minerals, were so many Indexes of their respective Qualities, for the Cure of particular Diseases.

They maintained, for Instance, that *Euphrasia* bore a Mark which indicated its Virtues against Disorders of the Eyes; and this Mark is a small black Figure within the Flower, and which they said represented the Eye-ball. One of the Species of the *Dentaria*, Toothwort, whose Root resembles a Chain of Teeth link'd together, proves by that very Circumstance, that it is a proper Remedy for Disorders of the Teeth, and for the Scurvy. The Seeds of Pomgranates, and the Kernels of Pine-apples, having also the Form of Teeth, we ought, from that Circumstance, to infer, that they are Remedies proper for those Parts. *Pulmonaria*, or Lungwort, is good against Indispositions of the Lungs, because it is light and spongy like that Organ, and in some measure resembles its Figure. Lemons are good against Disorders of the Heart, because they, in some measure, resemble its Figure. And as that Organ has a relation to the Sun, as we have already observ'd, the yellow Colour of the Citron represents, in some measure, the Colour of the Sun; and, in like manner, denotes that Fruit to be of a cordial Quality. Gold having the same Colour, as also the Splendor of that Luminary, they said it was not, for that Reason, to be doubted, but it was the most excellent of all Cordials. The Root of the Plant *Satyrion* indicates still more strongly by its Figure, that it is destin'd for strengthening the Parts subservient to Generation. *Asarum*, which so exactly resembles an Ear, is, for that very Reason, a Remedy proper against Disorders of that Part. More Instances of this Kind may be seen in *Crollius*, who has wrote at great Length upon this Subject. But *Libavius*, tho' a great Chymist, frankly confesses, that a Conformity between the Figures of certain Simples, and their Medicinal Virtues, is purely an accidental and fortuitous Circumstance.

We must here observe, that, notwithstanding all these Signatures, *Paracelsus* and his Followers depended much more upon Metallic Medicines, than on those supplied by the Animal and Vegetable Kingdoms; in which respect they differ'd from the antient Physicians, who knew little more of Metallic Medicines than their Uses in external Applications. The Followers of *Paracelsus* also required, that Medicines, from whatever Substances they were extract'd, should be prepared chymically; because, without that Circumstance, they are so far from being salutary, that they are prejudicial, since the poisonous Quality, naturally in all Simples, is not separated from them.

Paracelsus also believed, that certain Words and Characters could cure some particular Diseases, which would not yield to other Remedies; potable Gold, or the Quintessence of Gold, and that of Antimony, not excepted. He affirm'd, that Nature had communicated her Virtues, or imparted her Power, to Words, or engraved Stones, as well as to Herbs and Roots. He also maintained, that the Physician might have recourse to Magic for the Cure of Diseases.

Notwithstanding his embracing these Opinions, he did not neglect the two most common and universal Remedies of Venesection and Purgation; but he thought Clysters unnecessary, and tells us, that he wrote nothing on that Subject, because he look'd upon them as very prejudicial to the Constitution. He wrote five Treatises on Venesection, which shews us, that he did not disapprove of that Practice, though he thought it was not used as it ought, and subjected it to several Rules drawn from the Disposition of the Stars. We make this Remark, in order to shew, that the Chymists who came after *Paracelsus*, and who, for the most part, reject'd this Remedy, have not, in this particular, followed the Sentiment of their Master. He used Purgatives; but preferred those chymically prepared, to such as were in Use among the *Greeks* and *Arabians*. *Oporinus*, in *Epistola ad Solenandrum & Wierum*, informs us, that when *Paracelsus* purg'd his Patients in any Disorder whatever, he, for that Intention, prescrib'd *Mercurius Præcipitatus*, reduc'd to Pills, and made up with a little Theriaca, or Mithridate, or the Juice of Cherries, or of Grapes,

Oporinus does not explain what kind of Precipitate his Master used. The Quacks frequently gave red Precipitate in Venereal Disorders, which is a very violent Purgative, and an Emetic, the Composition of which *Paracelsus* gives us. He orders this Medicine to be prepared by dissolving Mercury in Aqua fortis, and drawing it off five times by Distillation, more or less, till the Mercury has acquired a beautiful red Colour. Upon this Powder Spirit of Wine is afterwards to be pour'd, and drawn off by Distillation seven, eight, or nine times, till the Precipitate becomes white in the Fire, and is no longer subject to evaporate. He adds, that by this Process we shall obtain a diaphoretic Precipitate. The modern Preparers of red Precipitate follow all the Directions of *Paracelsus*'s for they first use Aqua fortis, and then Spirit of Wine: But in vain do they pour this Spirit upon the Powder, and draw it off, since it does not by that means become white, much less does it undergo such a Change as to become fix'd, incapable of evaporating, and of ever being reduc'd again to a liquid Mercury. By this we see, that the Words of *Paracelsus* are not greatly to be depended on; and here, as on every other Occasion, he pretends to instruct us in the Method of composing an excellent Remedy, which far surpasses the common Precipitate; but when his Directions are rigidly observ'd, the Experiment always fails of Success. We have just Reason to doubt, whether he knew the Secret of this diaphoretic Precipitate, the Preparation of which he pretends to describe. But whether he did or not, the Preparation, mentioned by *Oporinus*, was exhibited with a View to purge, and not to

excite a Diaphoresis; and it is highly probable, that it came very near to the ordinary red Precipitate, if it was not entirely the same. *Paracelsus* certainly knew other purgative Medicines drawn from Minerals; and we ought not to imagine that *Oporinus* affirms, that his Master never purg'd with any thing except Precipitate Mercury. It is impossible, that, having made so many Experiments upon Antimony, he should not discover, that, among other things, various purgative Substances might be obtained from it; for he asserts, in the first Place, that as Antimony is more proper than Fire, or any other thing, to purify Gold or Silver, so it, in like manner, purges the human Body, and carries off its Impurities. It is certain, that by the Name *Magistery* he does not mean a common Cathartic Medicine, since he tells us afterwards, that the Magistery of Antimony cures the Leprosy. This *Essence*, this *Arcanum*, this *Virtue* of Antimony, as he calls it, is, according to him, prepared in the following manner. "This," says he, "is what we call the Virtue of Antimony, of which no mention is made in any Medicinal Work whatever. Take care, in the first Place, that no Part of the Antimony be corrupted, but that it remain entire, without losing any thing of its Form, since under this Form the *Arcanum* of Antimony is conceal'd. It ought to be forc'd by the Retort, till no Caput Mortuum remains; and by three Cohobations reduc'd to a third Nature: Then this Arcanum is obtain'd. The Dose of which is four Grains mix'd up with Quintessence of Baum." These Directions have no great Tendency to render us more knowing than we were before. We do not observe, that *Paracelsus* often mentions any Purgative, properly so call'd, obtain'd from Antimony. In his Treatise *De Caducis*, he indeed mentions Flowers of Antimony, without describing the Manner in which they are prepar'd, since he only talks of a Preparation of which they are the Basis, and which he affirms to be an excellent Remedy against the Falling-sickness, though he gives us no farther Description of it. He however specifies its Dose, which is nine Grains before the Paroxysm, and eighteen under it. In another Passage he says something concerning the *Mercurius Vitæ*. He made almost as many Experiments upon Vitriol as upon Antimony; and mentions an Arcanum which he extracted from it, and which he preferred to that obtained from Gold.

We shall not, on this Occasion, run out into a Description of the Essences, the Magisteries, the Elixirs, and other important Secrets, which our Author calls *Magnalia Dei*, such as the Quintessence already mentioned, the celebrated Remedy call'd *Azoth*, which *Paracelsus* always carried about him, and his *Laudanum*. With respect to this last Medicine, we cannot forbear suspecting that it was a Composition consisting principally, if not entirely, of Opium. This is, in reality, an excellent Medicine, when judiciously used; and a great many Physicians are of Opinion, that it is not very necessary to prepare it, since the most laborious and expensive Preparations of it are not much more valuable than the most simple, or the Drug itself, such as it is brought to us from the *Levant*, or such as the *Turks* daily use. *Paracelsus*, indeed, affirms, that those Medicines in which Opium is an Ingredient, are of a poisonous Quality, that we ought not to repose any Confidence either in the Poppy, Henbane, or the Mandrake; and that we have no anodyne or narcotic Medicine which operates safely and easily, except Sulphur extracted from Vitriol, which, besides its other Uses, is an excellent Remedy against the Falling-sickness. However, in another Passage, he frankly confesses, that Anodynes, such as Opium, are of singular Efficacy in the Cure of the same Disorder; and immediately after proposes a Formula of a Medicine compounded of *Theban* Opium, Cinnamon, Musk, and Amber. It is true, indeed, he at the latter End adds the Arcanum of Vitriol, which is the same thing with the Sulphur. But if this Sulphur is alone so excellent an Anodyne, and so proper for the Cure of the Epilepsy, why did our Author join Opium to it? He was well enough apprised that this Objection might be made to him; and endeavours to answer it, by saying, that there might accidentally be some Fault in the Vitriol, and that the Artists were sometimes guilty of Oversight in preparing it, which was the Reason why it sometimes fail'd of producing its Effect. This Answer shews us, that *Paracelsus* did not repose so great a Confidence in his Sulphur of Vitriol, as not to endeavour to assist its Effects by Opium, the Virtues of which are not so precarious. And this Circumstance seems to confirm our Conjecture with respect to his *Laudanum*. We shall not take upon us to determine, whether any one is at present Master of the Secret of this wonderful Sulphur, or this Arcanum of Vitriol, which our Author prefers to all the Remedies prepared of Gold, and whose Virtues he so highly extols in several Passages. The Secret must unquestionably be among the Number of those which are known by few, and concerning which our Author says, that if God communicates them to any one, they are not, for that Reason, made public, because God has given Prudence enough to those to whom he imparts them, to keep them conceal'd, as they shall always be till the Coming of *Elias the Artist*, when every thing that is now conceal'd shall be set in a clear Light.

The Surgery of *Paracelsus* has by some been more esteem'd than it may possibly deserve. Though he has composed two pretty large Works on this Subject, one intituled *The Great Surgery*, and the other *The Small Surgery*, yet in these voluminous Productions he scarce treats of any thing besides Wounds and Ulcers. For the Cure of these he does not depend upon common Remedies, and such as are obtain'd from Plants, but used Chymical Medicines, some of which are very good for answering these Intentions. But if these did not produce the design'd Effect, he did not hesitate to have recourse to *Characters*, *Words*, and the other delusory Arts of Superstition. With respect to Wounds, he says there are two Methods of extracting the Iron of an Arrow or Dart when it is lodg'd in a Wound; that this is ordinarily done by pulling it out, and attracting it by Medicines, if it is only sharp and long; or by pushing it farther in, and attempting to bring it out from the opposite Part, if it is bearded. He also observes, that the same Practice is to be followed when a Musket-ball is lodg'd between the Bones. He adds, that when the Intention cannot be answered by Herbs and Roots, which he owns are very often ineffectual, we must, in dislodging bearded Arrows or Balls from between the Bones, have recourse to certain *Verba Conjellata*, or Words influenc'd by the Stars; and boldly affirms, that by the virtue of these Words alone, without the Assistance of any thing besides our Fingers, we may easily extract all kinds of Darts from Wounds. But, says he, the Malice of the Sophists has attempted to render this Art infamous, by prohibiting its Use, under the Penalty of being anathematiz'd, and committed to the Flames. I do not, for this Reason, neglect to practise it, since I know there is nothing in it but what is natural. *Paracelsus* says very little upon Tumors, Fractures, and Dislocations; and through the Whole of his Chirurgical Works, we find nothing relating to the Amputation of Members, and those Operations which are performed by the Knife, and the Fire. It even appears, that he did not approve of these last-mentioned Methods, though he commends the Use of the Knife as the only Remedy to be depended upon in the Stone.

Our Author enlarges pretty much on the Pox, examines its Causes, inquires into its Signs, and proposes a large Number of Remedies for its Cure, the principal of which are various Preparations of Mercury, but described in his own Manner, that is, so as to be understood by very few, or rather none at all.

In reading the Works of *Paracelsus*, it is easy to observe, that he had a heated and disorder'd Imagination, full of the crudest Notions; whence it is no Wonder he gave into Astrology, Geomancy, Chiromancy, and the Cabbala;

Cabbala; which were extremely common and popular Things in those ignorant Ages. He says expressly, That Medicine must be join'd to Magic, or it cannot be successful; by which he does not mean Natural Magic only, but declares, that no one need scruple getting certain Secrets of Physic from the Devil, and boasts of holding Conversation with *Galen* and *Avicenna*, at the Gates of Hell. In short, he has used all possible Means to persuade the World, that he was a real Magician; so that if he has failed in the Attempt, it is his Misfortune. Indeed it has been the common Opinion, that he was one; but, for my Part, I judge he was rather in some Instances an Impostor than a Conjuror.

But among the bad Things that his Works are stuffed with, there are some which are good, and contribute to the Improvement of Physic. What he says against the common Notions that had prevailed from the Time of *Galen*, as to the Effects of the primary Qualities of Bodies, hot, dry, cold, and moist, has somewhat open'd the Eyes of Physicians. He calls the Philosophy of *Aristotle*, a wooden Foundation; and, if himself has not laid a better, he has given Occasion for it; and promoted a Discovery of the Weakness of that old Basis. His Opinion of Seeds, all which he supposes existed from the Beginning, prevails to this Day among the most knowing, who have only explain'd it better. His Doctrine of Salt, Sulphur, and Mercury, has great Uses in Philosophy and Physic; if taken not as real Elements, but as active Principles in Bodies. It is also manifest, that he had a great Knowledge of the *Materia Medica*, and bestow'd much Time and Pains in working upon Animal, Vegetable, and Mineral Substances, so as to have made a very large Number of Experiments; but then he has this great Defect, that he studiously conceals what a long Course of Experience has taught him upon this Subject; so that the short Critic of *Guntherus d'Andernac* is extremely judicious: "I allow, says he, That *Paracelsus* was an excellent Chymist, and that he has deliver'd many good Things in his Writings; but, on the other hand, it is Pity he should have mixed them with a Number of others, which are false and frivolous; and at the same time should have involv'd the best in so much Obscurity, that scarce any one can understand what he says, or make the least Advantage of it. I wish *Galen* had been less diffusive, and more exact, in his Works, and *Paracelsus* more clear and candid; but, as every one has his failings, we should retain what appears to be good, and leave the rest."

The Lord *Bacon* has given a just, tho' severe Censure of *Paracelsus*, in his Philosophical Capacity, to this Effect: *Paracelsus*, standing at the Head of the Chymists, deserves to be separately chastised as a Monster. What Bacchanalian Oracles are those he utters in Meteorology; whilst he is ridiculously aping *Epicurus*? All that *Epicurus* asserts upon the Subject, is but Opinion, which he unconcernedly left to its Fate; but *Paracelsus*, blinder than Fate, and more rash than Chance, is ready to avouch the absurdest Falshoods. What Dreams of Resemblances, Correspondences, and Parallels, are given us by this fanatical Linker together of Idols? His three Principles indeed, might be received with some Utility, as having a Foundation in Nature; but he is continually wresting them to every thing, according to his great Dexterity in Delusion. But this is not the worst of him; for, like a sacrilegious Impostor, he has mixed and polluted divine Things with natural, sacred with profane, Fables with Heresies, and human Truths with religious; so as not, like the antient Sophists, to have hid, but extinguish'd, the Light of Nature. The Sophists were only Deserters of Experience, but *Paracelsus* has betray'd it. At the same time, he is so far from understanding, or justly representing Experience, that he has added to the Trouble and Tedioufness of Experimenting. In short, he has every-where, to the utmost, magnified the absurd Pretences of Magicians, countenanced such Extravagancies, and encourag'd others to believe them from his own Assurance; being thus at once the Work and Servant of Imposture. His Disciples greedily swallow those Doctrines; which he has rather promulged and promised, than actually laid down and made good, and defended with Arrogance instead of Caution; being thus recommended with pompous Shew, Affinity with Religion, the Subterfuge of Obscurity, and other Impostures. And hence his Followers appear link'd to one another by the lying Spirit, that shews itself in their swoln Hopes and Promises. However, by wandering thro' the Wilds of Experience, they sometimes stumble upon useful Discoveries; not by Reason, but by Accident; whence proceeding to form Theories, they plainly carry the Smoak and Tarnish of their Art along with them, and, like childish Operators at the Furnace, attempt to raise a Structure of Philosophy with a few Experiments of Distillation; and their own Idols of Separation and Mixture, where no Traces of them are really found. Yet we do not accuse them all in the Lump, but make a Difference betwixt that little servicable Set, who, being not very solicitous about raising of Theories, principally practise a certain mechanical Subtily in making new Discoveries, with their Uses, more after the manner of Frier *Bacon* than *Paracelsus*; and distinguish these from that impious Tribe, who endeavour only at procuring Applause to their Theories, and court and beg it under a pretended Zeal for Religion, large Promises, and the Arts of Imposture, which is the Way of *Basil Valentine*, and most of the Alchemical Authors.

Notwithstanding what Lord *Bacon* says of *Paracelsus* and the Chymists, they certainly deserve very great Praise, as they have contributed a vast deal to the Improvement of the Art of Healing. First, As they demonstrated the System of the *Galenists* to be false, and banish'd it from Physic; tho' it must be confessed, they did not substitute one which was more rational in its room. Their Theory, however, was less pernicious than any of those which preceded it, as it was less capable of leading into Error; for it was too romantic, and too manifestly false, to mislead so many as others had done, tho' some few Enthusiasts gave into it.

Secondly, They were Benefactors to Physic, as they introduc'd, or reviv'd the Use of many Remedies, of the greatest Importance in curing Distempers. Amongst these are Mercury, Antimony, Sulphur, Nitre, in the Sense we understand it, Opium, and Iron, from which they directed us to make various Preparations, and taught us their Uses. To these may be added, the volatile, urinous Spirits, as those of Hartshorn, Blood, or any other Animal Substance.

About ninety Years after *Paracelsus*, the famous *Van Helmont* appear'd, a Man of such infinite Industry, that he spent fifty Years in examining fossils, animal, and vegetable Bodies by Chymistry. He would undoubtedly have made a very considerable Figure, if he had made a right Use of his Discoveries, communicated them candidly to the World, and forbore running into the Notions of *Paracelsus*, whom he mimic'd in pretending, like him, to an universal Remedy. He was a Man of Learning, Abilities, and Eloquence.

All *Europe* soon came into his Opinions, and then none but purely Chymical Preparations were in request, and nothing but what was produc'd by Chymistry was to be confided in for the Preservation of Life and Health. And when afterwards *F. Syllivius de la Boe*, Professor of Physic in *Leyden*, made it his Business to promote Chymistry, and was continually extolling its Usefulness to a numerous Audience, his Authority, Eloquence, and Example, were sufficient to establish its Reputation every-where. Some indeed doubted, but almost all assented, as soon as *Otho Tachenius*, with great Resolution and Success, undertook the Cause of Chymistry, in three learned and elaborate Treatises. They now began to be convinc'd, that Nature acts, and that the Life of

Man

Man is actuated, by chymical Instruments: By these, all that Variety of Motions by which all Effects in the Universe, and in the Body of Man, may be produc'd, but without them nothing, are excited, directed, increased, diminished, and destroy'd. These were the only Maxims current in the Universities, and in the Writings of Physicians. Did Acids by their Acidity corrode Metals? An Acid was provided for the Dissolution of Aliments in the Stomach. Did Acids generated by the Fire, and mixed with the highly acrid Oils of Aromatics, produce a violent Effervescence? We must believe, that the acid Chyle, mixed with the Balsam of the Blood, rouses the natural Heat of the Body; or, if both these should happen to be acrimonious beyond measure, they must be supposed the Cause of burning Fevers. Nitre, Sea-salt, but especially Sal Ammoniac, refrigerate Water: Immediately the cold Fit of a Fever was ascribed to them. The Exhalations of the Particles of Wine during boiling, receiv'd in a Vessel placed over them, shew us how our Spirits are generated. Acids mix'd with Alcalis cause a violent Effervescence, and are ready to break the Vessel which incloses them: Just so the Chyle, mix'd with the Blood, raises the like Tumults in the Ventricles of the Heart, the Veins, and the imaginary Rhomboidal Receptacles in the Muscles.

The human Stomach is made an Hermetic Pot, in which the tepid Acor of a Ferment excites a Fermentation of the Aliments: Hence the Chyle contracts an Acidity, and, passing out with an Effervescence, meets with that alkaline Incentive, the Bile; here begins a Combat between the two Champions, the pancreatic Humour being a Spectator and Encourager of the Fray; the Work goes on briskly, the Duumviri are hotly engag'd, being supported by their respective Guards; part of them by a natural Impetus rush into the Canals of the lacteal Veins, and by their own proper Efforts penetrating through the Meanders of the lacteal Rivulet, fall into the Torrent of the Blood, where, instead of finding Peace, they are attack'd by more Enemies which lay in Ambuscade, and a new Fight commences. In the mean while others resolutely pass the Streights in Pursuit of the Runaways, and, coming up with their Enemies in the Chancel of the Blood, renew the Battle, which becoming general, part of them rush into the first Ventricle of the Heart, and thence in the first Heat of their Fury through the Isthmi of the Lungs, breaking thro' the Myriads of little Tubes. Nor is here an End; for the Concourse of the pulmonary Vessels reassembles the scatter'd Bodies, and throws them into the other Ventricle of the fervid Heart, where, animated with fresh Spirits, they break through all Obstacles, and diffuse themselves throughout all the most intricate and secret Recesses of the Body, whence they return full of Spirit and Alacrity to the Cells of the Heart. All this has much the Air of a Romance; but some modern Physicians, it is certain, have seriously maintained, that the natural Actions of Life were perform'd after this manner. He that has a thorough Notion of all the Parts of this Farce, may in an Hour's time become a great Artist. First, be careful to get right Ideas of *Acid* and *Alcali*; you may soon after be taught the Signs of each, and you will easily see which is the most prevalent. You have nothing more to do, then, but to come in with some Auxiliaries to the Relief of the weaker, and so restore the Balance of Power between them. And thus is the Sum and Substance of all that *Sylvius* and *Tachenius* taught, and which the World so much admir'd and follow'd, comprehended in very few Words.

Such Chymists might have been forgiven all these trifling Vanities, and been look'd upon only as ridiculous, if they had not founded upon their Fooleries some Pieces of Practice, highly destructive to the Lives and Health of Mankind. Of this I shall give one memorable Instance. *Galen*, as we have seen before, started the Notion of Animal Spirits. Some of the Chymists improv'd upon this Chimera, and pretended to determine the Manner in which they were produc'd, comparing it to the Generation of vinous Spirits by Distillation. Others went a Step farther, and affirm'd they were subject to Diseases, as Inflammation, and capable of being infected with something deleterious; and observing farther, that many Diseases of the acute Kind terminated by copious Sweats, they concluded, that the most expeditious way of curing acute Disorders was, to resolve this imaginary Inflammation, or to drive out from these imaginary Spirits, the pretended deleterious *Something*, but they knew not what; and this by means of profuse Sweats extorted by violently hot Remedies, if those may be honour'd with this Appellation, which do much more Injury than Good. Herein they seem to agree with *Asclepiades*, who was of Opinion, that one Fever ought to be cur'd by raising another, or rather by making the present Fever worse: They, however, ran counter to the Doctrine of *Hippocrates*, and his Guide Nature, who both, if attended to, would have inform'd them, that this sort of Evacuation is highly prejudicial, unless the Humours are previously concocted, or, in other Words, till the obstructing Matter, which causes the Disease, is sufficiently attenuated by the vital Powers, to be capable of passing thro' the Pores of the Skin.

Thus were heating Medicines first introduc'd into Practice, to the great Dishonour of Physic, and the Destruction, in all Probability of Millions. And not less than the Experience of an Age was requir'd to convince the Generality of Physicians, that such Medicines, thus applied, were more pernicious than the dreaded Inflammation, and more deleterious than the *Something* they dream'd of.

In the Beginning of the seventeenth Century, the ever memorable Dr. *William Harvey* discover'd the Circulation of the Blood. And this gave Occasion to the Introduction of Mechanics into Medicine, upon the Ruins of the chymical Theory. These are more likely to improve it, than any thing relative to Speculation, which has yet occur'd to us; provided nothing be taken for granted which can admit of a Dispute, and the Facts we reason upon are sufficiently ascertain'd. In order to set the Uses of these in a true Light, I shall give the Substance of an Oration wrote by the celebrated *Boerhaave* expressly on this Subject.

Those who make Geometrical Calculations of the Powers of Bodies from their Bulk, Figure, and Velocity, either assumed, or taken by Observation, are called *Mechanics*. Their Art depends on a very few, certain, and well-known Principles, which are the Foundations of all the subtle and difficult Inventions that have been made in it. And tho' it has been highly esteem'd in all Ages, and thought necessary to other Arts, it meets with Contempt among Physicians, being commonly overlook'd, or not regarded, as being of little or no Service.

So slight an Opinion of Mechanics I take to be so unbecoming a Physician, and the Source of so many Errors, to which he may be liable in his Practice, that I shall make it my present Business to prove, *That the Knowledge of Mechanics is highly useful, and even necessary, in Medicine.*

That the general Nature of Body is by none better defin'd than by Mathematicians, I suppose every one will allow; but the peculiar Properties of every single Body, as existing in the Nature of Things, were never rightly deduced *a priori*, from this universal Idea of the Geometricians, which being form'd only of a Collection of common Qualities, exclusive of whatsoever distinguishes one from another, will never furnish us with an Argument from whence we may draw a Conclusion explicatory of the peculiar Nature of a Body, tho' on this very Thing primarily depends the Power of Acting, with which one Body is endu'd above another; and consequently this being unknown, the other must remain a Secret. Whoever, therefore, has a Mind to discover the Nature of an unknown Body, must search out such Qualities in single Bodies, as may limit his Ideas, and

restrain

restrain his Ratiocinations to the peculiar Nature of one individual Subject, which cannot be certainly known but by sensible Experiments, and Observations of the Effects of each Body. For these Effects are to be reckoned among such Things as flow from the peculiar Nature of the Subject we examine: One Effect, therefore, denotes a single Property, and a Collection of all the Effects together constitutes the whole Nature of the Thing, as far as it is discoverable by the Senses. Having obtained a Knowledge of these Properties, if we proceed to demonstrate, in a geometrical Way, such other Properties as, by clear and necessary Consequence, follow from the former, we discover a far greater Number of Things, than we could have known by the Help of our Senses, and yet no less certain or useful than those others. Besides these two, there is no third Method of attaining to the Knowledge of the peculiar Construction of any corporeal Machine; and both these Methods convince us of one Truth, which is, that the human Body is of the same Nature with the whole Universe of Things which we contemplate; and by the Testimony of Sense, and in the Judgment of Reason, contains nothing extraordinary above the rest, if its Principles be seriously examined, except that it consists of more and different Machines, agitated by the Influx of Humours, and is qualify'd, by its Construction, to produce more Effects, and that great Variety of Motions, which, by the Laws of Mechanics, flow from the Bulk, Figure, Solidity, and Connexion of the Parts; and this is evident, if we consider, that if the mechanic Motion of one of these Parts be destroyed, or the Band of its Connexion loos'd, the same Effects are no more to be expected. Hence the human Body is of a true mechanical Structure, and, therefore, possess'd of all the Properties which belong to a Subject the best qualify'd for mechanical Speculation. Therefore a mathematical or mechanical Frame, and the human Machine, are, from the same Laws, explicable by Geometry, provided we assume for *Data* not such Things as a fruitful Imagination may form to itself out of an infinite Variety of Possibles, but such Properties as are well known, from the Testimony of the Senses, to be peculiar to them. Very many of these Properties have been discovered by Anatomy, in observing the Size and Structure of the larger Parts of which we are compos'd, and more have been disclosed in the lesser Parts by the Help of Microscopes, which demonstrate, that the larger and lesser Parts of the human Structure are of the same Nature. Hydrostatics also, or the Knowledge of Liquids, has inform'd us of many Things which determine the Qualities, Forces, and Directions of the Humours which circulate in our Vessels.

All these Things being considered, either no Conclusion at all, according to the Laws of Science, can ever be drawn from them, or we must own ourselves principally oblig'd to Mechanics for the Knowledge, and, consequently, the Management of the human Body. But who can assert or believe, that nothing of Truth, Certainty, or Use, can be collect'd from so many manifest Observations, whether the Nature of each be duly consider'd apart, or all of them compar'd together with the justest Ratiocination? He who should speak at this rate would betray a dull Indisposition and Weakness of Mind, and an ungrateful Neglect of the finest Inventions we can boast of. But if he should grant, that, according to the Laws of Ratiocination, Things before unknown may be discover'd and illustrat'd, but deny that this is done by the Benefit of Mechanics, let him assign some other Art which gives us a greater Insight into the Nature of Bodies. In attempting so to do, it is necessary for him to suppose, that the Nature of Things can best be explained by such Principles as are quite foreign to the Nature of the Thing into which we inquire, and by such Persons as keep at the widest Distance from the only Method of searching after Truth which is approv'd by Men of Sense; and, therefore, he must involve himself in so many and great Absurdities, that I shall take my Leave of him; and look upon the Proposition as demonstrat'd.

But this, you will say, is too dry a Way of Convincing, and too remote from common Apprehension, to gain much Assent; and this is certainly true, if the Weight of a Demonstration is to be judg'd from the Multitude of those who are capable of understanding it. For their sakes, therefore, who are the major Part, I shall endeavour to display the thing in the clearest Light.

That the greatest Part of our Body is made up of Arteries, by whose Assistance it is maintain'd in Strength and Vigour, is too evident to need a Demonstration. That those Arteries are Canals which confine the Blood, and direct its Course; that the greatest of them are about the Heart, and that their Cavities gradually lessen, so as at last to become imperceptible, is what every Butcher knows. It is as well known also, that one Trunk of these Arteries, which proceeds from the Heart, spreads itself into lateral Branches, shaped like the Trunk, and divided again, and decreasing after the same Manner; but so contriv'd, that the Trunk, which goes directly forwards, is commonly of a larger Capacity, at the Place of Separation, than the Branches, which run out at the Sides of this Division. That all these Vessels are incurvated in such a manner, that the Sides of their Cavities are every-where bent into an infinite Number of very large Angles, and that the Effects of this spiral Course of the Vessels upon the Blood, which passeth thro' them, are very considerable, is an Observation made a few Years ago by some who applied Geometry to Medicine. The wise Author of our Machine has, by an admirable and effectual Contrivance, made these Canals flexible, that they might be capable of Distention from the Pressure of the contain'd Liquid, and yet be in no Danger of Laceration; and also qualify'd them in such a Manner, that, after reciprocal Dilatation, they might recur with a strong Impetus upon the Humour, as it ceases to dilate the Vessels, and be able to restore themselves to a narrower Capacity.

Malpighius was the first who observ'd, that the last Branches of an Artery, running into minute Divisions, dispose themselves on a Membrane as on a firm Base, and there open into one another by the mutual Intercourse of small Canals. The same Author first trac'd out these Canals through a thousand Mazes and Windings, through which they hurry the contain'd Fluid. But here, with the greatest Admiration of the divine Mechanism, observe that the small Branches, dispos'd with the greatest Accuracy, extending over equal Spaces, and destitute of lateral Shoots, as being no longer subdivided, changing their Figure, constitute the Origins of the Veins and Lympheducts, with their Sinuses. These are Things which either the naked Sight, or Microscope, the Ligatures of Vessels in living Bodies, or Injections of Mercury into dead ones, the Contemplation of a diseas'd Subject, or Comparisons of Brutes, Fishes, Insects, and Plants, have discover'd; and this is all that we know of the Arteries, tho' there are a Multitude of Fictions on the Subject.

The greatest Part of the Body, then, and what is of great Efficacy towards Life, is, according to mechanical Description, a conic, elastic, innervat'd Canal, divided into similar lesser ones, proceeding from the same Trunk, which being at last collect'd into a retiform Contexture, about cylindrical Vertices, mutually open into one another. If this be true, as nothing can be truer, then all the Effects which the Arteries work upon the Blood, depend only upon their Make as describ'd, and, consequently, are to be account'd for and demonstrat'd from the same. Now I appeal to every capable Judge, Who is the Person qualify'd to demonstrate in Order the Things which shall arise only on this Head? None, I say, but he who, being accus'tom'd to the Contemplation of mathematical Schemes, and the Calculation of oscillatory Forces, well knows what important Truths he can demonstrate by virtue alone of such Assistances; and such a Person is the Mechanic Philosopher, and none else. But let

us take the Artery into farther Consideration, the Knowledge of which comprehends almost that of the whole Body.

The Artery, having constituted the retiform Figure before-mentioned, emits cylindrical Tubes of so small a Diameter, as not to admit the red Globules of the Blood, but only the thinner and colourless Part thereof; and hence you are furnished with the true Idea of a lymphatic Vessel. The same Artery, again, at the same Place, extends itself in a Trunk, which runs directly forwards, and, being larger than the lymphatic Vessels, conveys the red and thicker Part of the Blood, deprived of its thinner and serous Part; and here is the genuine Original of the Veins. These, beginning first with a narrow Cavity, have it soon after enlarged by the Concourse of new veiny and lymphatic Tubes; whence it comes to take the Figure of a Cone, similar and vertically opposite to the arterial Cone.

If you imagine Arteries, Veins, Lympheducts, with their Apparatus, as before described, affixed to a membranaceous Plane, interwoven with Nerves, and, adding thereto some elastic Filaments, suppose them all rolled up together, you will have the Structure of a Gland, which as often as I contemplate, I consider it as the fruitful Source of many wonderful Effects, as well as the Occasion of many ridiculous Fictions, which, by the incredible Labour and Industry of the acute *Malpighius*, who has fully demonstrated the Simplicity of its Construction as aforesaid, are now exploded. Such a Demonstration will appear to be of very great Importance, if we consider, that the whole Body is but little more than an Aggregate of Glands. The Brain, which, by the divine *Hippocrates*, was accounted a Gland, is described by *Malpighius* as made up of Veins, Arteries, Sinuses, and Branches of Nerves. The Liver, Spleen, and Kidneys, are conglobate Glands. The very Laboratory where the genital Humour is prepared, is an artificial glandulous Conglomeration of cylindrical Canals. The Receptacle of the Embryo, the Placenta, and the Breasts themselves, are composed of Glands. The Bones and Membranes are much of the same Contexture, as none doubts who has read the ingenious Works of *Malpighius*, *Kerciringius*, and *Havers*.

Let us now examine carefully the muscular Parts, and we shall find them to be Working-instruments, contrived by the most subtle mechanical Art. For every Muscle is composed of lesser similar ones; but where must they end? Or what is the last of these? A Filament? It is no other than a dilated and attenuated Pellicle, of a nervous and very narrow Canal, forming a Cavity larger than the Canal whence it arises, which Cavity is inflated only with Spirit. The immense Force of such a Machine as this is well known to those who have compared the Hydraulic Experiments of *Mariotte* with *Des Cartes*'s Mechanics.

If we take a View of the Lungs, which are of a different Structure from the rest of the Parts, we shall find them to be a Composition of elastic spheroidal Bags, hung at the Vertex of the vocal Cone. The Superficies of these Bags is adorned with Veins in Net-work, but is almost destitute of Lympheducts, for Reasons which remain a Mystery.

Could you believe, that so admirable and artificial a Machine as the human Body was perfected by such a simple Apparatus? But so it is, and the more to be admired for that Simplicity. A Man versed in Mechanics highly magnifies the Wisdom of the Author of that Instrument, which is best accommodated for producing any desired Effect, and is, at the same time, the most simple of all that are capable of producing the same.

What can we conclude from the Premises, but that the Body of Man is a Machine, whose solid Parts are some of them appointed as Vessels for confining, directing, changing, separating, collecting, and discharging Fluids; others mechanic Instruments, which by their Figure, Harcness, and Connexion, are qualify'd to support other Parts, or to exercise some determinate Motions? This twofold Distinction of the Solids comprehends all that was acknowledged or discovered by *Hippocrates*, with all the *Babylonian*, *Egyptian*, and *Grecian* Naturalists, whom he copied, and all the *Greeks* his Followers. Nor have the *Arabians*, with all their Industry, nor the many excellent modern Restorers and Improvers of Anatomy, with all their Art, assisted by Instruments, or the Force of Reasoning, been able to discover more than these two which we have assigned. We have no need then of having recourse to Elements, Qualities, Forms, with chymical, animated, or metaphysical Causes: The human Body is a proper Subject for Mechanics, nor is there any thing in all its Solids but what will fall under their Consideration. They are the only Persons then who are to be regarded, and their Principles, their Method, are to be used and followed in our Inquiries concerning the Effect of an organical Part, and no Demonstration of that Nature can be valid, but what comes from an expert Master in Mechanic Learning.

What Account is to be given, or what Uses can be assigned, of the simple Figure of the Cornea, of the aqueous Humour, the crystalline Lens, with the determinate Superficies and Spissitude of the vitreous Humour in the Eye? Shew me how the Spiral of the external Ear, or the Way of the Meatus Auditorius, being straighter and more inflected in the Middle, but wider and more direct at each End, conduce to the Reception and Direction of a Ray of Sound. Contemplate the Thinness of the Membrane of the Tympanum, its elliptical Figure, its Convexity towards the interior Parts of the Os Petrosum, the Mutability of its Form into a Variety of curve Figures, by means of the affixed Malleolus, agitated by its proper Muscle, and then tell me the Effects of so operose a Structure, which is never wanting even in the vilest Animal. Give me a Reason for the Intricacies of the Labyrinth, the Uses of the Concha, Vestibulum, the double Spiral in the turbinated Cochlea, and the Fensella Ovalis, and Rotunda. I will be bold to say, that, without a profound Knowledge of Mechanic Powers, you will never be able to understand, or give a Reason for any of these Particulars.

Thus briefly have we spoken with respect to the Solids: We come now to say something of the Fluids, in whose Motion Life consists, and on whose free and undisturbed Motion through their Vessels Health depends. Now, in order to have a right Notion of the Nature of Fluids, we are to know the minute and agitated Corpuscles, whose Collection constitutes a Fluid. Every one of these, taken singly, must be consider'd as a Solid, and consequently performs all its Effects, by virtue of its Bulk, Motion, and Figure; and these Effects are known only to the Mechanic by Experiments. Each of these Particles of a Liquid is in a spontaneous State of Fluidity; but this Part of the Doctrine of Liquids is not improv'd to such a Degree as to be of so much Service to us as might be wish'd. But if we consider the whole Mals of our Fluids together, we shall find, that Gravity and Fluxility are the common Properties of all sublunary Liquids. But the elastic Force, the various Degrees of Weight, Spissitude, Fluidity, and Resistance, with the Momentum of the Force with which it is carry'd, and the Direction of its Course, are the principal things which distinguish one Fluid from another; and all these Properties are of such great Efficacy, that an Infinity of Accidents which happen to sound Persons have no other Original. Wherefore the Man who knows how to search out these Properties according to the Rules of Art, performs a Work highly necessary for perfecting the Art of Medicine. But how can a Person propound, explain, and demonstrate the Force of these Qualities, if he be ignorant of Hydrostatics, which is a subtle Part of Mechanics, in which,

assuming

assuming for Data some of the forementioned Affections, we proceed in a Geometrical Way to find out some very useful and practical Theorems? Neglecting therefore the Physical Cause, or the Nature of every single fluid Particle, we learn from what affects our Senses in a Mass of Fluids, how solid, how useful in Life, this Part of Science becomes; when treated in a Mathematical Way. To be farther convinced, read but the Writings of *Archimedes*, *Des Cartes*, *Stevinus*, *Borelli*, *Mariotte*, *Newton*, and *Bellini*. How much is it to be wish'd, that some happy Genius would arise and make such Discoveries as are necessary to complete so excellent a Branch of Science, from which more Improvements might be made in the Art of Medicine, than from all other Parts of Learning! They who have attempted to explain the Force of the Liquids in the human Body, being themselves ignorant of the Mechanic Powers, have, by so doing, render'd themselves, and Medicine, which, more than other Arts, deserves to be seriously treated, ridiculous; and I dare assert, that none who are ignorant of Mechanics can know the Actions of the vital Humours.

They who assume to themselves, I know not by what Right, a Name from *Hermes*, and have erected themselves into a Sect, under the Title of *Hermetical Philosophers*, will object here, and ask me, Whether I can, from this universal Doctrine of Liquids, deduce the Properties which belong to each of them? Or whether I can explain the stated Motions of Ferment, the fervent Conflicts of different Liquids, and the surprising Effects of spontaneous Putrefaction, by the Laws of Mechanics? In Answer to these Gentlemen, besides referring to what has been already said, I shall farther observe, That the Experiments of the Chymists will indeed afford us a narrow View of single Events, as far as they produce some sensible Effect under some determined Circumstances. Therefore Chymistry is very necessary to Medicine in furnishing it with Observations, and shewing us the most compendious Way of making them. For the Chymical Art can afford Data, and determine their Conditions, but will never supply us with Rules of arguing from them. Therefore the Professors of this Art have but little Reason to boast, as their manner is, that all the Treasures of Medicinal Knowledge are contained in Chymistry. For we are well assured by common Experience, that with relation to our Health and Sickness, more is effected by those common Properties of Liquids which fall under Geometrical Considerations, than by those artificial and dubious Properties which are produc'd generally by the Chymists. One Man drinks Water, another Wine; one lives abstemiously upon Bread and Fruits, another fares voluptuously, and loads his Table with all the Variety that Sea and Land can afford, render'd palatable by the most exquisite Seasonings and Sauces. Some again are perpetually stimulating their Intestines with salted, acid, and acrimonious Foods. And yet so great a Multiplicity of Diet shall prolong Life and Health for many Years in those who saturate their Humours with such different Corpuscles; a plain Argument that the Actions of Life are more owing to the common Nature of Fluids, explain'd by Mechanics, and produced by the Power of the Viscera in the Body itself, than to the peculiar Influence of any kind of Particles. If my Lord *Bacon's* excellent Treatise on Life and Death, with the Rules of *Hippocrates* and *Celsus* concerning the Diet of Persons in Health, or common Observation, be not sufficient to confirm our Belief in what has been said, I could add the Testimony of *Lower*, a Man of excellent Sagacity, as well as perfect Sincerity, who relates that a young Man, quite exhausted by the Loss of a vast Quantity of Blood, was revived only by pouring down his Throat Flesh Broths, which enter'd his Veins, circulated in them, and even flow'd out of his Wounds, the Colour of them unchanged. What Physician, when he is to attend the Sick, does not find himself a thousand times oftener obliged to inspissate, in Cases of too great Fluidity, to resolve Coagulations, move Stagnations, check Dissolutions, dilute the Humours when too thick, or consolidate them when too thin, than to employ his Thoughts about the Conflicts of Salts, the Flames of Sulphur, or the hidden Nature of Mercury? Those very Gentlemen who are never so much attach'd to Chymical Notions, when call'd to Practice, dare not trust to them, but direct their Thoughts to the accomplishing of one or other of the Intentions above-mentioned. Therefore if such a Multitude and Variety of Effects proceed from the Properties of Fluids, and if these Properties, by universal Consent, are best explain'd by Mechanics, it appears that a Physician, in order to understand the State of the vital Fluids, wants the Assistance of Mechanic Philosophy.

Consider the Effects of Liquors flowing through Vessels, and you will be the more clearly convinced of the Power of Mechanic Truth. For if the Liquids in this human Machine continue at Rest, you see a Carcase; but when there is a free Passage for the Humours through their Canals, we behold a living Body. Who doubts of this, may be convinced by his Eyes; for let us consider a Person of a pusillanimous Temper, who at the Sight of the Blood springing out of his Vein falls into a Swoon: You see him dead; but after what manner? Why, here are all the Solids which are necessary for Health, and all the Fluids too; there only wants a Circumgyration of the Liquors; and let there be, by what means soever, a Concussion of the Nerves, which may impel the Fluid to move the Heart, Life returns with the usual Circulation of the Humours, Heat, Colour, Agility, Cogitation, and every vital, natural, and human Action. What Ferment in this Case, what Effervescence, what inimical Salts, what Oil or Spirit, is generated or destroy'd? Except Motion, there is nothing added or diminished, and yet the lost Life is restored. Thus Birds and Insects, when frozen to Death, are immediately reviv'd by a gentle Warmth. Some, though convinced by the Force of Truth, often entertain some Distrust on account of the Clearness of the Evidence to vulgar Apprehensions. I shall therefore remove their Doubts, by inviting them to a more uncommon Spectacle, that of a dead Animal, whose Thorax is destroy'd, but is immediately revived by blowing into its Lungs with Bellows apply'd to the Larynx, as related by *Hook*. If you cannot help being surpris'd at a Life so mechanical, what think you of *Glisson*, who, by means of a Bladder, infusing a Liquid into the Veins of the Carcase of a Man long since dead, imitates the vital Actions after a surprising Manner? All these Specimens, with infinitely more which might be brought, are enough to prove that almost all those Things which either constitute or flow from Life and Health, depend on that Motion by which the Humours move, and act upon one another by a perfectly mutual Agitation, in their respective Vessels, the Effects and Laws of which being rightly understood, explain'd and demonstrated, only by Mechanics, under the Heads of Hydraulics and Pneumatics, I conclude again, that they are all the Subject of Mechanics.

On this Part of our Subject the Patrons of Ferments boast mightily of their Advantages, and set a great Value upon themselves: "For if, say they, the free Flowing of the Liquors through the Vessels be the Cause of Life, the first Principle of Motion must be in and from the Fluid, and consequently from an internal Agitation of extraordinary Force, and sufficient Constancy, or such as is excited in Liquids only by Ferments." But they ought to know, that the first Cause of the Motion of the Fluid in an Embryo is always to be derived from the Parents; that it is maintained and cherished by the Mother, while the Fœtus depends upon her; and is perpetuated afterwards by the very Frame of the Solids. Whoever inspects the admirable Structure of the Auricles of the Heart with their Connexion to its Basis, and, what necessarily follows from them, the alternate Influx and Expulsion of the Blood transmitted from the Heart to the Arteries, from them to the medullary Substance of the Brain, the Processes, Nerves, Muscles, and Veins, will satisfy himself with accounting for the Continuation of Life from the

Mechanic Power of the Viscera ; for it will be easy for him to demonstrate, Mathematically, that one Pulse of the Heart in a sound Body is the Cause of the Continuation of that Motion. The Means of preserving Life are much fewer in Number, and of a much more simple Nature, than we are subject to fancy ; the Alterations made in Things which we receive into our Bodies, are much slighter than is commonly imagined ; and the Causes of human Life are less complicated than we suppose them to be. If we had an exact Knowledge of the human Structure, or a right Notion of the Nature of the Humours, as cognisable by the Senses, the Science of Mechanics would soon teach us that those Things which being unknown, now raise in us the greatest Admiration, flow from very simple Principles. We shall illustrate the Truth of this Paradox by one Example, which will shew by what simple and perfectly mechanic Means a Change in what is accounted the greatest Operation in our Bodies is effected. The pellucid Part of a living Animal view'd by a Microscope plainly shews, that the Blood is propel'd merely by the Pulse of the Heart to the Extremities of the Arteries, where, by the elastic Contraction of the Artery, it is a little repel'd, at which Moment the Stroke of the Heart ceasing, and its Valves falling, there is room made for its Regress. By this reciprocal Impulse and Repercussion the Parts of the Blood of various Sizes are every-where apply'd to Orifices of various Dimensions, and receiv'd by some, and repell'd by others. By this simple Artifice is the Blood secreted into Fluids of different Colours and Consistence, which are soon after to be thoroughly mixed together again in the Veins. Here one who is versed in Chymistry, and the Conflicts of Bodies, will be convinc'd by his Eyesight in the clearest manner, that all these things described are performed merely by external Impulse, and the Elasticity of the Vessel, without any Sign of Ferment. Oftentimes when I have been fix'd in contemplating these things, I have doubted whether what I saw was Part of a breathing Animal, or Ducts devised by the Contrivance of the most complete Mathematician, cut out by the Hand of the most skilful Mechanic, for the drawing, separating, and mixing of Liquors, under the Direction of the most consummate Master of Water-works.

Some Things, the Knowledge of which a few Years ago was despaired of, are now from simple and indubitable Experiments of the Senses demonstrated in a Geometrical Way by Mechanics. Consult to this Purpose *Borelli*, who applies the Doctrine of the Mechanical Powers to Medicine. Read over what *Bellini* has discover'd from the same Principles, assisted by the Invention of *Malpighius*. Peruse also those Problems which *Pitcairn* proposed to the learned World, and demonstrated. Examine what *Schneider*, *Des Cartes*, *Huygens*, have written of the Eye ; and what *Kircher*, *Scheelhammer*, and *Morland*, have taught us concerning the Ear and Hearing. All these prove, beyond Contradiction, the Usefulness of Mechanic Knowledge in Medicine ; and shew what might be expected, were the Use of it introduced into the salutary Art by some skilful Physicians, and persisted in for so long a time as human Patience has been able to endure the idle Systems of some Sects in Medicine.

All these things will be allow'd to be true, and the Usefulness of Mechanic Learning in Medicine is acknowledged with respect to the Theory ; but it is very commonly said, that Mechanic Knowledge is of no Service at all to a practical Physician. This plausible Distinction, made with so much Confidence, does not appear to me to be consistent ; for I do not suppose that by Theory they mean any other than what clearly shews, from proximate Causes, what is the Life of a Man in Health. If this be admitted, as it ought to be, it will follow, that this Science affords us the best Assurances for the Knowledge and Cure of Diseases. For he who knows the Causes of perfect Health, must, whenever they are deficient, be very well qualified to comprehend the Original and Nature of such Defect, that is, the Disease ; and certainly he who has the clearest Notion of the immediate Cause of Sickneſs, is the fittest Person to encounter with it ; just as it is in a Clock, where every one observes when the Hand deviates, but none knows how to correct it according to Art, but he who, knowing the exquisite Structure of the Machine, can both find out the Defects of the Parts, and Remedies for the same. So there is not a Truth in the Theory of Medicine, which a skilful Artist does not know how to apply to his own Advantage in Practice ; and, consequently, to confess the Excellency of the Mechanic Science in Theory, is to grant its Usefulness in Practice.

That most antient and useful Branch of Medicine, Surgery, owns itself much oblig'd to the Arts of Mechanics ; for who is so well qualify'd to invent Instruments for the remedying of Defects as a Mechanic ? Those minute Images which seem to dance before the Eye, were treated by those who were ignorant of Mathematics, as the Beginning of a Cataract in the aqueous Humour, with acrimonious Medicines, which often corroded that tender Part the Eye. But since *Willis*, from Geometrical Reasonings, has fixed their Seat in the Retina, and assign'd their Cause to the Arteries, and *Pitcairn* has given a Demonstration of the same, how is the Method of Cure alter'd ! The external corroding Topics are rejected, and the Defect is soon remedy'd by Phlebotomy and a Purge, if severe enough to require any sort of Treatment. A depraved Vision, from a wrong Collection of the Rays, would be very injudiciously treated with a Collyrium, or a Medicinal Potion, but is very successfully remedy'd by Spectacles, for the Construction of which *Huygens* has given Rules adapted to each particular Defect : And I wish, that they who discard the Mechanic Science from Medicine, would first take the Pains only to understand *Huygens's* Treatise of correcting the Defects of Sight, where, assuming for Data the Structure of the Eye, as describ'd by Anatomists, and one Property of the Disease he designs to cure, he soon finds a Remedy for it in the Mathematics, which is adapted only to this peculiar Disorder, to whose Property his Problem was confined. Thus, without touching the Eye, he removes this Effect of the Disease, and compensates a Defect in itself irremediable with the supplemental Glass. Here we behold a fair Specimen of the Method, Use, and Success, of mechanic Ratiocination on Medicinal Subjects ; and if all other Points were handled after the same manner, as by degrees they might, Medicine would have more of Certainty, and not be subject to Hypotheses, nor mutable at every Turn, but a fix'd and eternal Science.

It signifies nothing to say, that it is not yet confirm'd, that the Disorders of the Fluids, and consequently the internal Cause of Sickneſs, with its Cure, are subjected to mechanic Remedies. For the Question is, either, Whether this Benefit from mechanic Studies be impossible to be obtained ? or, Whether it be already acquir'd ? If the latter be meant, the Objection is unfair and vexatious ; for how can it reasonably be expected, that a few Mechanics, who have studied Medicine but a short time, should bring things to Perfection, in which the joint Labour of all others for three thousand Years has scarce made a Beginning ? It is even an utter Impossibility ; for since the Laws of applying Mechanics to Medicine require, that the Structure of the Solids, with the Nature of the Fluids, and their sensible Effects in Sickneſs and Health, should serve as Data, it would be very absurd to expect, that so laborious an Art should be perfected without Rudiments. But, if any one should be of Opinion, that nothing is to be done or brought to Perfection by the Mechanic Way, I desire him to consider well with himself, that the Cause of a Disease proceeding from a Fluid, depends, *for the most part*, on the disorderly flowing of that Fluid thro' the Vessels, as appears from the Experiments of *Hippocrates*, compar'd with those of *Sandtorius*, and what are commonly made. Now a Person who has been diligent in comparing the Phenomena of Life, Health, Diseases, Death, and dead Carcasses, will, for the most part, ascribe the internal Impediment

Impediment of Circulation, either to the Weakness of the impulsive Force, or a convulsive Contraction of the Vessels, or to some Fault in the Fluids, with respect to Quantity, Motion, Thickness, or Thinness. And, upon serious Reflection, we shall find, that those Remedies which we administer to sick Persons, are beneficial principally on account of their removing the before-mention'd Disorders. Compare the invaluable Observations of *Sydenham*, with the Demonstrations of *Bellini*, concerning Venesection, Stimuli, and contractile *Villi*; and when you are convinc'd, that common Remedies relieve by an Operation plainly mechanic, you will entertain some Hopes, that their Virtues and Applications may, by Degrees, be reduc'd within the Rules of Demonstration. And I can hardly forbear, tho' perhaps too prematurely, pronouncing that the Causes of even the most complicated Diseases are more simple and mechanical, than any Physician imagines; for the least and most simple Disorder of one Part, by Communication necessarily resulting from Union, suddenly perverts the Powers of the most healthful Machine. Prick but the smallest Fibre of a Tendon or Nerve, with the finest Needle of the purest Steel, and you will soon see what a Train of frightful Symptoms are the Consequences of so slight a Wound; for then follow Pain, Redness, a Tumor, a burning Heat, Pulsation, a Fever, Thirst, Delirium, Convulsions, and at last Death. A Thorn, or a slight Splinter, fixed in a membranous Part, produce the same Effect; and the like also proceed from the Spicula of Poisons, the Lancets of Pestilences, and the Points of Salts. What wonderful Alterations are produced in a sound Body by external Motion only! Let a Person turn round for some time, or be tossed upon the Waves in a Boat, when unaccustomed to it, and he will find himself molested with a Vertigo, Paleness, Nausea, Vomiting, and Anxiety, with a Multitude of other Disorders, and surprising Alterations, produced in the vital Fluid only by Motion. He, then, who considers, that the Humours remain incorrupt as long as they are agitated and propelled in their Vessels; that if they stagnate in a hot and moist Place, they presently grow morbid, and communicate the Infection; and that one simple Disorder is immediately followed by an Infinity of others; will very easily perceive, that the most expeditious Remedies, in these Cases, are to be expected from the mechanic Physician; for what is there that may not at length be found out by comparing the Causes of the Impediments of Circulation, the Rules of overcoming Resistance, restoring the elastic Motion, and augmenting the Force of the Heart, with the Phenomena of the Disease?

But, say some, the Power which the Mind exercises over the Body shews, that Life, Health, and Diseases, have no Dependence upon mechanic Principles: Vain therefore are all Attempts of that Kind, and mechanic Speculations can be of no manner of Service to a Physician.

It were to be wish'd, that those who make this Objection were not involv'd in one common Ignorance with the rest of Mortals; for, who among all Mankind could ever find out the Force of this wonderful Commerce in any thing that constitutes either the Body or Mind? We ought however, to know that the Virtue of Cogitation, as soon as it comes into the Body, renders every thing which it produces therein corporeal, and consequently obedient to mechanic Laws. What Matter is it, if the first Cause of an Alteration be not mechanic, since it is the Business of the mechanic Physician, not to concern himself about that first Cause, but to know, examine, and direct the Effect, which is corporeal?

There is one thing on which they who differ with me in Sentiments lay their principal Stress, which, that I may not be thought artfully to decline answering, I think myself bound to refute. Those Philosophers, they cry, and mechanic Reasoners, whenever they apply themselves to the Practice of the Medicinal Art, meet with nothing but Disgrace and ill Success: There is no need therefore of disputing, since it is certain from Fact and Experience, that the Knowledge of Mechanics is prejudicial to a Physician.

If their Objection be directed against those who assume the glorious Title of Philosophers in the Schools, what they say is very true, as appears from History, and the Books which these Philosophers have wrote on medicinal Subjects. For, while they undertake to create the first Principles of all things out of their own Imaginations, and afterwards, from those Qualities with which their Fancy had before endu'd them, endeavour'd to explain the peculiar Nature of every Body, that very Doctrine of Mechanics, here recommended, demonstrates that they erred in every Point. The Conclusions which they drew from Ratiocination, could never be applied to things in general, unless it could first be prov'd, that what they assumed as the Foundation of their Reasoning, really existed in every Individual. But, since the Nature of Things admits of infinite Variety, it is not likely, that Truth should be discover'd by random Guessing. But if these Scholastics before-mention'd, as well as many others versed in Mechanics, and Followers of *Des Cartes*, had not made it their Business to regulate the human Body by the Laws of their imaginary Principles, but by those things, of which, according to Observation, Man was really constituted, they would then have laid the Foundations of our Art by the Application of Mechanics.

But, if this reproachful Objection be intended against a mechanic Physician, such as I have described, I expect some Instances in Justification of the Calumny. None, who rightly understands our Meaning, will deny, but that an excellent Mathematician may make a very bad Physician. We do not require, that a Man skill'd in Mechanics should be a Physician; but that a Physician should be skilful in mechanic Learning. He who prefers one versed in Mechanics, but unpractis'd in the Cure of Diseases, to an experienced Physician, is a Madman; but, what I affirm, and have endeavour'd to demonstrate, is, that of two equally experienc'd Persons, the Man who is furnish'd with the greater Stock of mechanic Knowledge, is the best qualify'd for improving the Art of Medicine.

For the avoiding of all Misrepresentations, which are but too frequent, I shall give you a Description of a Physician, according to the Idea which I have form'd of him in my own Mind. I imagine him, first, laying the Foundations of his Art in the Contemplation of Geometrical Figures, Bodies, Weights, Velocity, the Fabric of Machines, and the Power of acting upon other Bodies thence arising. While he employs his Thoughts about these Matters, he is taught by plain Precepts, as well as Examples, to distinguish Truth from Falshood, Evidence from Obscurity, and acquires Prudence of Mind, from a Slowness to pass a Judgment upon things. When he knows how to estimate the bare Actions of simple Bodies, and to deduce them from true and manifest Causes, I think him qualify'd for learning the Properties of Fluidity, Elasticity, Tenuity, Weight, and Tenacity of Liquids, from Hydrostatics. His Reason being by this time much improv'd, he proceeds to study the Forces of Fluids upon Machines, and of these upon Fluids, and to demonstrate them by Mathematics, confirm them by Hydraulics and Mechanics, and illustrate them by chymical Experiments; and entertains himself with Speculations on the Nature and Actions of Fire, Water, Air, Salts, and other homogeneous Bodies. I now look upon him as sufficiently furnished and qualified for entering upon the Study of Medicine; and here he employs his Eyes, illuminated with Geometry, in viewing Dissections of human Carcases, or the open'd Bodies of living Brutes; and contemplates the Structure, Figure, Firmness, Original, Bounds, Connection, Curvature, Flexility, and Elasticity of the Vessels. Being excited by so wonderful a Spectacle, he applies what

he sees to the Rules of Mechanics, in which he was before instructed, and discovers the hidden Uses of those Parts. What a Variety of fine and useful Discoveries, with which later Ages have enrich'd Anatomy, employs his Attention! While he accommodates the Inventions of others, acquir'd with the utmost Labour and Industry, to his own Use, he forms to himself a clear Idea of the human Fabric. To this he joins the Knowledge of the vital Fluids, and examines them with the Assistance of Anatomy, Chymistry, Hydrostatics, and even of the Microscope; and soon after he runs over a most accurate History, artfully collected from all Parts, of all the sensible Effects produced in a healthful Body; and so now you see him furnished with *Data* for writing a Theory of Health. From these *Data* being each of them well understood, examin'd, and compar'd with one another, by the Assistance of Mechanics, and with the Strictness, Method, and Prudence of a Geometrician, he deliberately draws such Conclusions as the Subject naturally furnishes, and which, tho' hidden from the Senses, are evident to Reason. By this Method the proximate Causes of every Effect are investigated, the Nature of them being evidently known, as it is an Aggregate of the Properties of the Phænomena they collected, understood, and compared together. Now what may we not expect from one who directs his Studies by this Method? A Knowledge thus acquired would be immutable, and coæval with human Nature, from which it is deriv'd, and on which it is founded. It must have Certainty, as it proceeds with the utmost Caution in giving Assent, and depends on what is alike evident to all. It must be sufficiently determinate and useful, as it investigates the proximate Cause, by considering the certain and sensible Properties of the Body, and that in a way not capable of leading into Error. It increases slowly, I confess, and insensibly; but then the least Progress is always a sure Step to higher Attainments, and an infallible Cause of new Improvements. Thus you see him aspiring to Perfection, and now qualified for reading *Hippocrates* and the *Greeks*. Now behold him busied in furnishing himself with medicinal Collections from all Quarters; here again he is taken up with the curious Inspection of dead Carcases, whose Diseases he had observ'd; there he marks the Symptoms of Sickneſs procur'd by Art in Brutes, and now at length collecting together all the Effects of Diseases, with their Remedies, which he had either learnt from his own Experience, or found in the best Authors, he digests, considers, and compares them with those which are demonstrated by Theory, from whence he may at last compose a solid History of Diseases, and their Cures. This is the Idea which I have of a consummate Physician; to this I have always endeavour'd to conform myself, and to render those who commit themselves to my Care conformable.

Thus far *Boerhaave*; and it must be confessed, that Mathematical Reasoning is the most certain Guide to Truth, provided always that nothing is taken for granted as the Foundation of our Reasoning, which admits of any Disputes. But it has happen'd very unfortunately for Physic, that the warm Imaginations of Theorists and Anatomists have represented to them many things in themselves extremely precarious, as certain Truths; and these have been warmly embrac'd as contributing to the Confirmation of some favourite Systems, which their Authors were determin'd to establish right or wrong. Now all Reasonings whatever, from such uncertain Principles, are more likely to be prejudicial to Physic than to improve it; and I am inclin'd to believe, that the Misapplication of Mechanics to Medicine has done the Art of Healing more Prejudice, than a proper Use of them has done it Service. The Abuse, therefore, of mechanical Learning in Physic is highly to be condemn'd, as the Tinsel of the Art, which makes a Noise and a Shew, without communicating any real Value.

It is a very difficult thing for People even of the greatest Abilities, and soundest Judgment, when they are once determin'd to explain all the Phænomena relative to the Animal Œconomy mechanically, to forbear representing things which please their Imaginations, as Realities, upon very slender Evidence. Even *Boerhaave*, in the Oration made on Purpose to recommend Mechanics in Physic, deviates from his own Rules, and boldly supposes some things as certain, which would give him a great deal of Trouble to prove, if they should be denied. Thus, speaking of the ultimate Fibres of the Muscles, he represents them as minute Tubes inflated with Spirits. Now, the Existence of these Spirits has never been demonstrated, and I believe never will. Whatever therefore is deduc'd from a Supposition of their Existence, is extremely precarious, and subject to infinite Controversy.

It may be farther asked, Whether, since the Introduction of Mechanics into Medicine, any Cure has been discover'd for Distempers before esteem'd incurable; and, Whether they have suggested any better Methods of Relief for Diseases which before admitted of a Cure. I must acknowledge, I can bring no Instances of the first Kind in their Favour, and very few of the last; but I have known frequent Attempts made to reason Remedies of Reputation, establish'd by Experience, out of Practice, because inconsistent with particular Theories pretended to be founded on the Laws of Mechanics, and to introduce others in their room, which Experience has prov'd to be of much less Efficacy.

Tho' the Abuse of mechanical Learning has yet had no salutary Influence on the Art of Healing, I am, however, convinc'd, that under proper Restrictions, this Kind of Learning may be of infinite Use, and contribute greatly to the Advancement of Medicinal Knowledge.

To what has been already said concerning the State of Physic, I shall add the Sentiments of the illustrious *Hoffman*, upon the Methods of improving it; the best and most successful of which, in his Judgment, consist,

First, With the greatest Attention and Diligence to write out full and accurate Accounts and Histories of the several Diseases which occur in Practice.

Secondly, By an attentive and minute Dissection to investigate, as far as possible, the curious and surprising Structure of the human Body; and

Thirdly, By the Assistance of experimental Philosophy, which includes Mechanics and Chymistry, to search for the hidden Causes which produce particular Effects.

Give me Leave to add a fourth Way of improving Medicine, which is carefully to attend to the Effects of Simples, whose Virtues are unknown, upon Brutes.

In former Ages, the Practice of Medicine sustain'd an incredible Injury by an intolerable Farrago of absurd and useless pharmaceutical Compositions, and a supine Neglect of what we call the Simples. Nor in these Ages did Medicine suffer less thro' a Penury of such Observations as lay down the full and accurate Histories of Diseases. But, to come nearer to our own Times, Medicine has been greatly injur'd by the Chymists, who rashly and imprudently extolled the most drastic Medicines of the Mineral Kingdom, as Specifics, and infallible Secrets for the Cure of Diseases, whilst they neglected and despised the safer Method of Diet, and the Use of such Simples as are easily obtain'd. If, then, we intend to advance the Medicinal Art, and make it shine with genuine Lustre and Glory, we must collect a sacred Treasure of select practical Observations, rest satisfied with a few,

few, but safe and well-chosen Medicines, be thoroughly acquainted with their Virtues and Efficacies in different Constitutions and Diseases, despise the cumbersome Load of Recipes with which practical Authors of an inferior Class abound, reject the so much extoll'd Medicines of the Chymists, and attempt the Relief of the Patients rather by Diet and Regimen, than the Preparations of the Shops. Whatever has hitherto contributed either to render the Theory of Physic rational, or its Practice happy and successful, has been drawn from practical Observations, a Knowledge of Anatomy, and Natural Philosophy.

Since the Discovery of the Circulation of the Blood by the incomparable *Harvey*, it is much more easy to account for Life, for Health, and for Diseases; as also in a Pathological Manner to explain the Doctrine of Fevers, Hæmorrhages, Inflammations, and several other Diseases.

Since the Conveyances of the Chyle from the Intestines to the Blood have been discovered; since various small Glands and glandular Coats have been detected in the intestinal Duct; and since we have adverted to the winding Situation of the Duodenum, which is justly call'd a second or a kind of auxiliary Stomach, in which two Humours meet the Bile and pancreatic Juice; we are able to give a better and more rational Account of Digestion, Chylification, Sanguification, and the Generation of Diseases, which have their Seat in the first Passages.

Since the Lymphatic Vessels have been discovered by *Bartholine* and *Rudbeckius*, and afterwards farther investigated by *Nuck* and *Ruyfch*; since the Structure and Use of the Glands have been more fully display'd by the Researches of *Wharton*, *Nicolaus Steno*, *Nuck*, *Cowper*, *Malpighi*, and *Morgagni*; and since the Conveyances of the Chyle through the Lacteal Vessels, and Thoracic Duct, have been detected by *Pecquet*, *Bartholine*, *Van Horne*, and others; we are much more able to explain those Diseases which arise from a Fault of the Glands and Lymph, or from a depraved Nutrition.

Since the Structures of the Viscera, Lungs, Brain, and Liver, have been investigated by the accurate *Malpighi*, and that of the Kidneys by *Bellini*, we far better understand the Origins and Causes of Disorders incident to these Viscera, such as a Phthisis, a Dropsy, and nephritic Disorders. We are also much indebted to the Pains which *Steno*, *Vieussens*, *Willis*, *Ridley*, *Lewenboeck*, *Ruyfch*, and others, have taken, in inspecting the Brain and Nerves more narrowly than any had done before them. We are also highly obliged to the Labours of *Glisson*, *Bianchi*, and *Morgagni*, for their accurate Accounts of the Structure of the Liver; and to those of *De Graaf* and *Brunnerus*, for our Acquaintance with the Pancreas.

Since *Casseri* and *Ruyfch* have evidently shewn the Compages of the Spleen to be vascular and cellular, we have fairer Opportunities of discovering the Diseases incident to this Organ, and finding out a proper and adequate Method of curing them.

Since we know the peculiar and surprising Structure and Distribution of the Vena Portæ, which performs the Office at once of an Artery and of a Vein; and since we now know the Number, the Origin, the Situation and Course of the Hæmorrhoidal Vessels; we are the better able to explain and account for all those Diseases which flow from the Faults of these Vessels, and an Interception of the progressive Motion of the Blood through the abdominal Viscera, of which Class the hypochondriac Disorder is none of the least considerable.

Since we know the surprising Fabric of the Uterus, and are assured of the manner in which the Blood circulates thro' its contorted Vessels, we can easily discover the Diseases incident to that Organ, as also the Disorders arising from Irregularities of the Menses, and account for their Origins, and several Symptoms, upon clear and intelligible Principles.

Since the Origin of the Nerves from the Brain and Spinal Marrow, and their admirable Distribution into curious Ramifications, have been investigated by *Vieussens*, and some others, we can readily account for spasmodic and convulsive Disorders, particularly for hypochondriac and hysteric Affections, and explain their most formidable Symptoms. In Consequence of this Discovery, we are also better enabled to understand the Consent of the Parts, especially those of the nervous Kind, and the Method in which disorderly and preternatural Motions are communicated.

Since *Swammerdam* and *De Graaf*, and after them *Cowper*, *Morgagni*, *Santorini*, and other celebrated Men, have investigated the Parts of Generation in both Sexes, we have the Diseases incident to these Parts subjected to our Senses, and their Causes, as it were, exposed to open View.

Since the admirable Organ of Hearing has been accurately and anatomically describ'd by *Du Verney*, *Valsalva*, and *Cassebomius*, the Impediments and Defects of Hearing are far better understood than they were before.

Since the small Glands of the Joints have been discover'd in the Bones by *Havers*, the Origins and Causes of arthritic Disorders are far more plain and conspicuous than they formerly were.

Since the incomparable and accurate *Ruyfch*, by injecting ting'd Liquors into the Vessels, has discover'd the innumerable and strangely varying Windings of the Capillary Vessels, we have a far clearer and more distinct Knowledge of the Use of the Glands, and secretory Organs, and consequently of the several Disorders to which they are subject.

'Tis obvious that the Geometrico-mechanical Structure of the Muscles, as described by *Borelli*, *Steno*, *Winslow*, *Santorini*, and *Albinus*, and the muscular Compages of the Heart, detected by *Lower* and *Lamiff*, are Discoveries of singular Service in determining the Motions of the Joints, understanding the Force and Pressure of the Heart, and the Impulse of the Fluids.

In a Word, all the anatomical Discoveries of the Moderns have contributed to illustrate, to beautify, and adorn the Healing Art: For Proof of this see the Article ANATOMY.

Nor have Physico-chymical Discoveries contributed less to the Advancement of Medicine; for since by various Experiments we have discovered the Gravity and Elasticity of the Air; since we know the Causes of Fire, Heat, Cold, Gravity, and Levity; since we have investigated the Natures of Solids and Fluids; since we have discover'd the Causes and Nature of Fermentation and Putrefaction, as also the Effects, whether natural or artificial, produc'd by various Salts and Sulphurs; since all these important Discoveries have been made, we can clearly account for the Power of the Air in changing the Motions of our Fluids, either for the better or the worse, and for the Generation of material or immediate morbid Causes. In Consequence of these Discoveries the Virtues and Efficacies of Medicines are also far better known than they formerly were.

Chymistry also, and Pharmacy, so much and so happily cultivated in our own Days, have contributed to the Perfection of the Art, by teaching us to prepare and make up the most salutary and efficacious Medicines.

Since the stated Laws of Motion have been ascertained and demonstrated by Statical, Mechanical, and Hydraulic Experiments, we better know whence proceed the moving Forces of the Muscles, the elastic Power of the Heart and Fibres, their Strength, their want of Tone, their spasmodic Constrictions, their Pressure or Impetus upon the Fluids; as also the wonderful and surprising Effects produc'd by the Inequalities of the Circulation of the Blood.

By

By what I have endeavour'd to inculcate in many preceding Passages, my Readers will readily understand, that the grand Labour incumbent on a Physician is to extirpate all Superfluities out of Physic, clean the *Augean* Stable, an *Herculean* Undertaking! and reduce the Art of Healing to that noble, useful, and intelligible Simplicity, from which 'tis probable the Supreme Being, in Compassion to human Infirmities, intended it should always be inseparable. This, at least, was the Opinion of the incomparable *Boerhaave*, whose Dissertation on this Subject highly deserves Perusal.

Truth, says he, has such Charms, that, as wise Men say, "Mortals cannot sustain the Sight of her naked;" but whoever shall be blest'd with such a Contemplation, will find nothing so admirable, so taking in her, as Simplicity. For Truth, being founded only on the clear Contemplation of Ideas, requires nothing of its Votaries, but to compare these Images, when placed in a fair Light, and seriously to judge of their Agreement or Disagreement, which is best effected by a close Attention of the Understanding to those Ideas, whencesoever they arise, which it beholds imprinted on itself. And as these Ideas, when pure and divested of whatever may darken or sully them, are inconceivably simple, so that very Attention, which is fixed on them alone, is, of all Acts of the Mind, the most simple. Consequently Truth, the Result of such an Act, though reputed the Parent of all Admiration, is the most simple of all Attainments. I appeal to those strict Votaries of Truth, the Mathematicians, whether the most intricate Problem does not lose all that it has of the Marvellous, when the Knot comes to be untied, and Truth appears in its native Simplicity. It is out of regard to this Simplicity, that from a Multiplicity of Solutions to the same Question, the most simple is always chosen and preferred. Or were I to ask the most useful of Geometricians, I mean those versed in the Mechanics, they will tell you, That out of a Multiplicity of Instruments for performing the same Work, they approve only of one, and that the most simple. He who makes the greatest Progress in his Researches after Truth is preferred before others, in Honour, as well as Success, on account of his knowing how to reduce, by the most proper and skilful Methods, Things naked and divested of all that is foreign, to their genuine Simplicity. The same is most true, with respect to all Kinds of human Wisdom, as appears from the History of all Ages. *Aesop*, *Socrates*, *Democritus*, *Hippocrates*, Lord *Verulam*, and *Des Cartes*, all the World will acknowledge to have been very great and successful Inquirers after Truth. But if we take a View of their Lives and Writings, we shall find, that the principal Means of their Excellency was that Simplicity which is always the Characteristic of Truth, and the surest Mark by which it may be discover'd.

Whoever rightly considers these Things, will be inclin'd to think, that the same holds good with respect to the Healing Art, which, when study'd and cultivated with an Integrity and Purity worthy of the Subject, I shall prove to carry in it a Facility, as well as Simplicity; and this I am the more willing to do, because there are many who purposely run out and expatiate on the Difficulty of the Art, and the infinite Labour necessary to attain it; by which Industry is discouraged, and taught to despair of ever surmounting those Obstacles, which these Men would throw in its Way.

That nothing belongs to Medicine, but what tends to preserve the Life and Health of Man from the Injuries of Diseases, is a Point, which, I think, cannot be deny'd. But an Opinion has prevailed, which is taken upon Trust, that there is an Infinity of Things of this Kind, and that their Numbers and Qualities are unlimited; so that Medicine being the most diffused of all the liberal Arts, with respect to its Subject, for that Reason commonly passes for the most difficult. But the Man who is wise enough to distinguish Things dubious from certain, true from false, will find himself oblig'd to rest contented with a few Conclusions of undoubted Verity, which are deriv'd from the genuine Principles of this Art; for in Matters which concern our Lives nothing is to be taken for granted, the Truth whereof is suspected by skilful Men of the Profession; and common Prudence teaches us, by all means, to guard against Errors, which are most effectually avoided by exploding whatever is peculiar to particular Sects, and embracing nothing but what all well-qualified Judges, with one common Assent, embrace and approve. Let Medicine be reformed and regulated according to this Rule, and it will soon be reduced from its enormous Dimensions to a very small Compass.

To confirm my Assertion, it will be proper to take a View of the principal Men of Reputation and Parts, in Comparison of whom the rest are but Compilers. The Books of the divine *Hippocrates*, to whom we are obliged for most Things in Medicine, if sifted and examined, will afford us but few things of Certainty, and those of the most simple Kind. For, expunge but his Fire and Water; his Elements, with their Powers; Nature, with its Inclinations, Aversions, Attractions, Repulses, and Ratiocinations; natural Heat, celestial Causes, and the anatomical Errors, with all that depends upon the before-mentioned Heads; and there will remain only a small Body of Observations, not very remote either from the Senses or Understanding. If we consider the harmonious and eloquent *Plato*, the Author of a numerous Sect, who have fill'd whole Libraries with their Writings, and divest him of his Triangles, Numbers, Ideas, Elements, Humours, Genii, Appetites, Harmonies, and Parables, with all their sacred Mysteries, and false Corollaries, what will there be left of him, but a very few Things, which *Hippocrates* had said before him? And if we divert our Thoughts to his proud Disciple, the famous *Aristotle*, the Oracle of Medicinal, as well as all other Learning, from *Plato* down to *Paracelsus*, we shall find nothing in him, or his Followers the Schoolmen, conducive to Medicine, but what is wholly borrow'd from *Hippocrates*; all the rest is either obscure, or so false, or general, as to contribute little or nothing to the Improvement of Medicinal Knowledge. What is there to be found in the voluminous Writings of *Galen*, except those of Anatomy, that is of Use, for which he is not oblig'd to the great Physician of *Coos*? All the rest is low and mean, and destitute of Force. I should now make my Conclusion from the Premises, but that I think myself oblig'd to pay some Respect to the venerable Company of *Arabians*, who, with their numerous and specious Appearance, would tempt me to change my Opinion, did I not know by Experience, that their Writings contain nothing but *Aristotle* and *Galen* speaking in *Arabic*. These Things, then, being taken for granted, of the Truth of which the Learned are satisfy'd, it will follow, that from the Beginning of the World, to the *Æra* of Chymistry, all that has been written necessary to Medicine, may be comprehended in a very few Leaves, and are of a very simple Nature.

Much the greatest Difficulty, then, which a young Student has to encounter in acquiring the Knowledge of the ancient Medicine, is to know how to avoid those which are only Compilers and Transcribers of those which went before them, and to apply himself to the few original Authors. He is not, therefore, to busy himself in turning over all the Antients, but to read these only, which being well understood, the rest may be neglected, unless he can be thought to make the greatest Progress, who leaves the strait Way, and goes round about. Ignorance, Folly, precarious Hypotheses of false Principles, and a lazy Assent without Examination, are the Faults of Men, not of the Age, and were of pernicious Consequence to the Antients, as they are to the Moderns. They who despise every fine and useful Invention of the Moderns, and reverence the Antients as so many

many Deities, are led by a Zeal for Parties, and do not weigh things in the Balance of Reason; and there seems to be a Spirit of Envy in favouring the Antients, to the Prejudice of Persons of Merit among the Moderns. But there are far greater Numbers who run to the other Extreme, and think very meanly of the Labours of the Antients, but launch out, on all Occasions, in Praise of their own Times, boast of the mighty Improvements and Enlargements of the Bounds of Medicine, and are very witty and satirical upon the Ignorance of the Antients. They who labour'd in the Improvement of Medicine, upon the Principles of a very great Mathematician of the last Age (*Des Cartes*), introduced strange Errors and Corruptions into the Art, by ascribing Events in Medicine to imaginary Causes of their own Invention. But such is the Condition of human Knowledge, that from the Observation of the Phenomena of Bodies, the Intellect arrives ultimately at an Insight into the Nature of the hidden Causes of Effects, which may lead to farther Knowledge thence deducible; whereas the Followers of *Des Cartes*, deducing most things from fictitious Principles, and relying only on Generals, made a monstrous Transition from thence to Singulars. Hence the *Cartesian* Philosophy has been so far from being useful in Medicine, that it has been discarded as a heavy Burden laid upon it.

The Chymists, by a diligent Observation of the Effects resulting from the Application of Bodies to Bodies, made very good Discoveries of the Virtues peculiar to some of them, and of the Actions of these Virtues, as far as lay within the Bounds of this Art. The Usefulness of such Labours, and their Necessity in Physic and Medicine, it would be unfair to deny; but when upon such a Footing they presumed to prescribe Laws, to which all Bodies must of Necessity be subjected, they soon fell into most shameful Errors. For, as, while they devoted themselves to the making of Experiments, they deserved much Commendation; so, when from the narrow Bounds of *Singulars* they made Excursions into the immense Spaces and vast Extent of *Generals*, they soon lost their Way, and fell into dangerous Mistakes. Manifest Instances of this their unmeaning Elements, pretended Ferments, and imaginary Actions of effervescent Bodies, furnish us with. Opposite Salts were, according to them, the only Instruments of the Operations of Nature; nothing less than Immortality would serve the Turn; Chymistry produced nothing but what was salutiferous, and the Practice of a Physician was to be made conformable to these idle Chimeras: See here the fruitful Sources of infinite Error! and take away all that is to be found of this Character in the Writings of *Paracelsus*, *Helmholt*, *Tachenius*, and the old Chymists, and then tell me how much there remains of real Use in Medicine.

Not a great deal, and that only of a simple Nature, which that honest and skilful Chymist Mr. *Boyle* has with the greatest Openness, as well as Prudence, explained to all Capacities. Does Medicine now appear of so formidable a Bulk? Are the Matters, about which it is properly employ'd, of so vast an Extent? No, but a very few things, and such as have a Simplicity conspicuous in their Fewness, are the proper Subject of our Art; whatever is more than this, and seems to enlarge its Capacity, is merely adventitious, and no more regards the Medicinal, than any other Science.

But, granting that this Simplicity belongs to Medicine in its low and imperfect State, have we not Reason to be apprehensive, that the Art is more and more difficult and complicated, as it tends to Perfection? I answer, directly in the Negative; and, if I mistake not, with very good Reason. For every Thing has its own peculiar Nature, and the Person who is so happy as to distinguish this Peculiarity, will never imagine otherwise of that Thing: But, he who inconsiderately disputes about things unknown, the farther he goes from the Truth, the more will he multiply Error, and embroil himself. Thus he who goes the direct and strait Way, arrives at his Journey's End with Ease and Speed; but those who deviate from this Way, which is always one, run off into innumerable By-paths, and wander about in uncertain Pursuits. Thus also it is with the Man who attains to Perfection in Medicinal Knowledge; the more happy he finds himself in the Possession of Truth, the more amiable will it appear to him for its Simplicity. In former Times, when a lazy Negligence, and an unbridled Licentiousness of Fiction, without taking the Pains to inspect the Structure of our Bodies, dressed it up in Imagination, how mysterious, and how formidable to young Beginners, was the imaginary Variety, and unaccountable Oeconomy; of the human Frame! But when, by the Industry of later Ages, the Contexture of our Bodies came to be subjected to the Cognizance of the Senses, how sudden and surprising was the Alteration made in the Affairs of Medicine! What is now become of the hidden Forms of Solids, the close Recesses, of the Archeus, the vast Numbers of single Ferments; the infinite Variety of Strainers, with their different Meatuses, together with the numerous Troops of most efficacious; but unintelligible and unaccountable Faculties? Medicine would be a difficult Acquisition indeed, if it were only to be attain'd by the Knowledge of such precarious things as these. Scarce had the famous *Harvey* led the Way in which he was so well seconded by the industrious *Malpighi*, to the Discovery of the human Machine, when those imaginary Beings, and Creatures of the Brain, vanished like Mists before the Sun; and so clear was the Evidence, so great the Simplicity, that the Discoverers themselves could hardly believe their own Eyes. Encourag'd with this, their Successors pursued their Researches, and in their Progress found the Ways of Nature still plainer, as they went farther; so that after they had set in the plainest View the most hidden Parts of the human Fabric, they could not forbear confessing, that their Art was reduc'd to a narrower Compass by their Discoveries. Who could have expected a farther Insight into the Structure of the human Viscera; than what is afforded by means of the Microscope, which discovers the same Things in the least, as the naked Eye had before observ'd in the greatest Vessels? The Nature, the Figure, the Simplicity, and even the Action, are every-where the same; so that the nicest Inspection best convinces us of the Mistakes of former Times, in imagining any Difference in them. How well is the same illustrated by that fine, delightful, and of late wonderfully improv'd Artifice, by which minute things are magnify'd, obscure render'd conspicuous, Things hidden shewn in open Light, and from Confusion reduc'd to Order, I mean the Injection of a Liquor into the minute and intricate Canals of the human Body, which, when empty, disappear! The Effects of this Art are a sufficient Confutation of those who dream'd of such a wonderful Variety in the hidden Parts of our Bodies, as was almost above human Comprehension; since it appears, by all the Artifices used to inquire into them, that the least Parts bear an exact Resemblance to the greatest, the hidden Parts to those which are most expos'd. As none, therefore, complains of any Difficulty or Mystery in the larger and more expos'd Parts, there is as little Reason to imagine any thing more wonderful or mysterious in those Parts which are the most minute, and most remote from Sight; on the contrary, the more we know of the human Machine, the more simple it appears.

The Subject requires, that I should remove some Difficulties concerning the Humours, which being observ'd by knowing Persons to be productive of innumerable Effects, they concluded there was as great a Multiplicity in their Nature. But tho' it be true, that every single Event depends on its proper Cause, yet it is falsely assum'd, that these Causes are wholly dependent on the Variety of Humours; for the same Action of the same Liquid, applied to different Canals, produces wonderfully different Effects. Or, if you examine the Liquids themselves,

themselves, you will not find so great a Multiplicity in them as is commonly imagin'd, as will appear by the following new Way of Argumentation. The Parts separable by Art from our Fluids are Water, volatile Salt, Oil, and Earth, which, tho' few, and easily reducible to the most simple Bodies, do not thus exist in a living Man, whose Body contains only the Matter, which is so alter'd by the Labour of the Chymist, as to afford such Productions. Therefore the natural Humour is even more simple than what Art produces, which, you see, is far from including a Multiplicity.

Dioptrics will represent the Thing I contend for to the Sight. How wonderful is the Simplicity of the vital Liquids, when view'd through a Microscope! There a salt Water is a Vehicle for red Globules, which change their Colour according to the various Bodies with which they mix in their Course, till at length, crouding into the narrow Canals they circulate by themselves, and changing their Colour, by degrees, from red to pellucid, at last disappear.

The Simplicity of the Aliment which supplies our Humours, furnishes us with another Argument: Hay or Grass, and Water generate, in a Cow, Humours very like our own. The Milk of that Cow by Transmutation generates the human Fluids, which are recruited in an abstemious Man, by the sober Aliment of Bread and Water. The deeper Insight, then, we have into the Nature of our Fluids, the more simple will they appear. And what is now become of all those vain and empty Hypotheses, concerning the wonderful Cause of the vital Heat, the different Functions of Ferments, so many intestine Motions of the Fluids, of chymical Products actually existing in the Blood, of extremely opposite and jarring Salts, which by their Conflict in the Blood strike out the Sparks which maintain the Flame of Life, of the Balsam which enlivens the vital Faculties, of Sulphur as the Cause of the purplish Colour of the Blood, of Salt seasoning the Fluids, and preserving them from Putrefaction? All these Fictions, with their infinite Corollaries, which were formerly so much regarded, as if Medicine must stand or fall with them, being thus discarded, how great is the Simplicity of the human Fluids, as far as we have any Knowledge of them!

But is not Medicine oppressed and overloaded with the Copiousness of its Subject on another Account? The Number of Diseases is not yet settled: Of these there is such a Multitude and Variety, and they impose upon us in so many Shapes, that a whole Age would suffice only to enumerate them; consequently these alone must create an infinite deal of Trouble and Perplexity.

I know this is a common Objection, but most frequent in the Mouth of those who are least exercised in the Practice of the Art; and of this I am very well satisfied. But I would ask these Gentlemen, Whether the most simple Disorder of the most simple Part does not, by prejudicing the Action of that Part, occasion a peculiar Disease? Nobody can doubt, but that the adjacent Parts, by Connection, are subject to be affected by the Sufferings of the Part originally disorder'd; and this also interferes with the Actions of the Parts secondarily affected, and an Impediment to these Actions is frequently consider'd as a new Disease. Hence many Effects, arising from one primary Disorder, and appearing distinctly under various Shapes, impose upon the unwary Physician, who, in his turn, imposes upon others, as if they were of a really different Nature, and oblige him to enter them in his Catalogue of Diseases. But, upon strict Examination, these Disorders proceeding from one and the same Cause, may be extirpated together with it.

It has been pretended, that the Knowledge of Remedies alone completes the Physician; but these are infinite in Number, and yet each is suited only to its particular Disease. Were this true, and if nothing could be done, or ought to be attempted, but by such as knew how to adapt each Remedy to its particular Case, which is the Drift of the Objection, the Study of Medicine ought to be exploded; for none but a Madman would be ambitious of learning an Art, of which he knew it was impossible to make any good Use. But is this Pretence warranted by the Practice of *Hippocrates* and *Sydenham*? No: In treating acute Diseases, they moderated the Violence of the Distemper, excited in case of a Torpor, and supported the Strength by a proper Regimen of Diet. But by what means did they answer these Intentions? To moderate the Impetus in acute Disorders, they made Evacuations, blunted Acrimony, dilated too thick Fluids, and condensed too thin, brac'd up Parts too lax, and relax'd where there was too great a Stricture, deriv'd the Humours to Parts where they would be least prejudicial, upon Occasion mitigated Pain, and in Languors they used stimulating Attenuants. Water, Wine, Vinegar, Barley, Nitre, Honey, Rhubarb, Opium, Fire, and the Lancet, answer'd these Purposes. *I must remark, that Boerhaave does not here mean, that Hippocrates used Nitre and Rhubarb; but, in what he says of Hippocrates and Sydenham, he confounds their Practice together. Sydenham ingenuously declares, that an experienc'd Physician is seldom without a Remedy. But he complains, that he found so troublesome a Variety in Diseases, when he made it his Business to examine their Nature, that no Time nor Strength of Man were sufficient for the Labour necessary in acquiring a Method of Cure proper to each Disease. He does so indeed in his younger Years, and writes too, that every Disease requires a peculiar Treatment; but when he grew old, he gave us better Hopes, and acknowledges with Pleasure, that all of them might be cured by one general Method, which consists in Bleeding, Purging with a subsequent Opiate, and Regimen. You see on what Simplicity in the Knowledge of Diseases and Remedies the Princes of the Art rely'd; and have others succeeded better with a vast Increase of the *Materia Medica*? By no means; for the Goodness of a Remedy is to be rated by its Simplicity, since multiplying of Medicines is not without Danger. What need then is there of such a pompous Apparatus, collected in so many Ages, and digested by so many Hands? What mighty Matters have this operose Pharmacy and Chymistry effected? Are the Remedies now successfully used in chronical Cases to be accounted numerous? Mineral Waters, Salts, gentle Diaphoretics, Soap, Mercury, Steel, with a few Vegetables, and proper Exercise of the Body, answer all Intentions. To what End then are so many natural and artificial Remedies from Fossils, Plants, and Animals? Any Person of common Sense may see, that they serve principally to hide the Ignorance of the hesitating Physician, and, by amusing the Patient, to prevent his Despondence. As to Drugs recommended by *Hippocrates*, *Theophrastus*, *Pliny*, and *Dioscorides*, we are, and always shall be, ignorant of them, except perhaps a very few; for the Antients contented themselves with giving the Virtues, but omitted the Delineations of Herbs so commonly known amongst them. And the Moderns have indeed been accurate in their Descriptions and Delineations, and very ingenious in ranging of Plants under their proper Genera and Species; but have given us very little concerning their Virtues, except what they transcrib'd from the Antients, and this upon an uncertain Supposition, that the latter meant the same Vegetables which the former describe.*

To conclude, what is there in the most elaborate Preparation, that is worth half the Pains taken about it? Mercury, Opium, the Peruvian Bark, Fire and Water, are acknowledg'd as the surest Remedies, by the best Masters of the Art; and these are found to be more efficacious in that crude State, in which bountiful Nature has imparted

imparted them to us, than after the most operose and artificial Preparation. We can despair of nothing, while we follow Simplicity; but the Event of intricate Labour is fallacious.

I must not finish this Preface, without taking Notice of some Complaints which the Booksellers concern'd in this Work have sufficiently reiz'd me with, relative to its Length. As it is not possible to alter the Plan of the Work at first laid down, and since pursu'd, without utterly embroiling the Whole, and rendering it much less valuable and useful, I should have very little Regard to their Remonstrances. But for the Satisfaction of the Purchasers, whose Interests, in the present Case, I apprehend to be inseparable from my own, I shall submit the following Reasons for my Conduct to their Consideration:

First, As it was absolutely necessary for every one who reads this Work for Information, to have a perfect Idea of what Authors mean by ACIDS and ALCALIS, in order to his understanding almost every Article relating either to Medicines, Aliments, or Distempers, I judg'd it proper to give full Information upon these Subjects in the Beginning of the Work; and this Consideration oblig'd me to anticipate several things, which would otherwise have come under other Articles in every Letter, and from which the Reader will find References, without Repeitions; another Convenience attending this Method. Thus what has been said under the Articles just mentioned, concerning Diseases generated by, or accompanied with, a redundant Acid or Alkali in the Humours, ought to be consider'd in every Distemper to which the Body is subject; and the Regimen proper in acute Diseases, specify'd under the Article ALCALI, must have been repeated in treating of every acute Distemper, if I had not dispatch'd it in one Article, to which I might refer.

Secondly, As all the Parts of the *Materia Medica* are call'd by different Names, for the sake of Method I have made it a Rule, from which I have very seldom deviated, to treat of every Animal, Vegetable, and Mineral, under the first of their Names which occurs in the Alphabet. As Instances of this are innumerable, I shall only specify one, which is Amber, in *Latin Succinum*; but as it is also call'd *Ambra*, I have finish'd the Account of it under the latter Name.

Thirdly, Under every separate Article of any considerable Importance, I have endeavour'd to include every thing relating to it, tho' properly belonging to some future Article, in order to save the Trouble of turning to a Multitude of Articles, and to give the Reader a full Idea of the Subject at one View. Thus, under ALCOHOL, which is the most perfect Production of the first Fermentation of Vegetable Juices, I have specify'd every thing relating to this first Fermentation; and under the Article ACETUM, the most perfect Production of the second Fermentation, every thing relating to the second. This therefore anticipates the Article FERMENTATIO.

Fourthly, The Lives of the antient Physicians have swell'd the Letter A considerably; and this was not to be avoided, unless I could have chang'd their Names, or omitted them, contrary to the Promise I made in my Proposals; for it happen'd, that most of their Names whom I judg'd it necessary to give some Account of, occur'd in the Letter A. Instances of this are *Aetnarius*, *Aegineta*, *Aesculapius*, *Aetius*, *Areteus*, *Albucaſis*, *Avicenna*, *Averroes*, *Avenzoar*, *Archagathus*, *Asclepiades*, and some others. As I have given the Life of *Ruyſch* under ANATOMY, together with an Account of the other Anatomists; under BOTANY, a Detail of the Physicians celebrated for their Knowledge in this Science; and under CHYMIA, taken Notice of the Chymists omitted in the Preface; the Lives of very few Physicians will occur in the Remainder of the Work.

It is obvious, that the Anticipations and Circumstances above-mentioned must necessarily render the remaining Letters of the Alphabet shorter, in Proportion as those already publish'd are longer.

That the Work is a single Sheet longer than at first propos'd, is owing to an unforeseen Accident, which, though it has given me an infinite deal of Trouble, will, I apprehend, be advantageous to the Purchasers of this Work. After a few Numbers of the Medicinal Dictionary were publish'd, I observed in the foreign Papers the following Title of a Book, which was advertis'd to be publish'd some time after.

Introductio in Notitiam Rerum Naturalium & Arte factarum, quarum in communi Vita, sed præcipue in Medicina Usus est. Per Alphabeti Ordinem digessit Joannes Christophorus Rieger. Hagæ Comitum 1742.

I found Means to get this Book, as soon as it was publish'd; and as it is a most excellent Performance, I thought myself oblig'd to insert in the Medicinal Dictionary whatever I had omitted in my Collections; and to cancel what I had wrote upon several Articles, in order to make Room for better Materials, which I frequently found in this Work. Dr. *Rieger*, if I am well inform'd, was employ'd by the late Czar, *Peter* the Great; and after his Death retiring from *Russia* into *Holland*, he liv'd in a Bookseller's House, where he had the Use of the best Collection of Medicinal Authors that was ever expos'd to Sale in *Europe*; an Advantage which I never had the Satisfaction of enjoying.

If, therefore, this Work is a little more prolix than was at first propos'd, the Purchaser will find his Account in it; and will, it is presum'd, be more inclinable to pardon it, when he reflects upon the Mortification an Author must suffer, whilst he sacrifices to the Interest of his Readers entire Pages of his own Productions; provided he can believe me to have a Tenderneſs for my own Literary Offspring, equal to that of most other Writers for their Works; a Supposition by no means unreasonable, especially when I assure him I have taken infinitely more Pains to divest myself of Prejudices in favour of any Theory, System, or Mode of Practice whatever, than I have to conquer my Affections.

With respect to the Preface, I must remark, that it was absolutely necessary for the Person who peruses the following Volumes, to be made acquainted with the Characters and Sentiments of the Physicians, whose Opinions concerning the Treatment due to Diseases are quoted; otherwise, when the Practice, for Example, of *Diocles*, *Erasistratus*, *Asclepiades*, or *Themison*, is specified, it would be in some Degree unintelligible and useless, unless he previously was inform'd of the Theory peculiar to these Physicians, upon which such Practice was founded. In order, therefore, to avoid repeating their particular Systems every time their Names are mention'd, I have given a Detail of them once for all in this Preface.

A

MEDICINAL DICTIONARY:

BEING A

BODY of PHYSIC and SURGERY.

A B A

A, or ALPHA, is used by Gerard Dorneus to signify the beginning of the restitution of a long life, instead of the immortality which was forfeited by the sin of our first parent Adam; as he uses the letter OMEGA to express the end of life. It is not very clear whether he means, by the *beginning of this restitution*, that which was accomplished by our Saviour Jesus Christ, or that which he proposes to begin by the help of chymical medicines. The curious reader may consult his treatise *De Tenebris contra Naturam, & Vita brevis*, in the *Theatrum Chymicum*, vol. i. from p. 457 to p. 472.

As many amongst the dreams of the chymists are of too little importance to deserve a critical explication, I shall from time to time refer to the authors themselves, that those who have leisure and curiosity enough may consult them for farther information.

A is used by Raymond Lully to signify God. See ALPHABETUM CHYMICUM.

But this letter is of much more general use in physic, mark'd with a line above it thus, ā, when it stands for ana, which is also sometimes abbreviated thus, āā, and signifies equal parts of the ingredients which immediately precede it in prescriptions, as *R thuris, myrrhæ, aluminis ā* &c take of frankincense, myrrh and alum, each a scruple. Or *R thuris, myrrhæ, aluminis āā p. æ*. Take of frankincense, myrrh and alum, each equal parts.

ANA is not a coined word imposed upon us by the authority of physical writers that have from time to time made use of it; but the Greek preposition ἀνά; and it is not peculiar, even in this sense, to physical authors.

Hippocrates, in his treatise of the diseases of women, speaking of a Pessary, which he recommends for promoting conception, after specifying the ingredients, adds, ἀνά ὅσον ἑκάστου, that is, *of each a dram*. In the same sense Dioscorides more than once uses this preposition, as ἀνά ὕγκιον μίαν, *of each an ounce*; ἀνά δράχμας ἑβ', *of each twelve drams*.

Xiphilinus, speaking of Augustus Cæsar, says, Ῥωμαίοις ἀνά πέντε καὶ εἴκοσι δραχμαὶς τελευτῶν καταλίσσειν. *When he died, he left the Romans each twenty-five drachms*. ἰλαβον ἀνά δηνάριον, St. Matthew, chap. xx. ver. 9. *They received each a penny*.

Many more instances might be brought; but these are sufficient to shew the force of this preposition to denote equality, and signify *each*.

In a celebrated French Dictionary publish'd by a learned body of men, *ana* is very unhappily interpreted a *physical plant*.

A, in composition, implies a negative, as will be explained under each particular article.

A. A. A. is used by chymists by way of abbreviation for Amalgama, or Amalgamation. See AMALGAMA.

ĀĀBAM, in some chymical authors, signifies lead. *Rulandus*. See the articles ----- PLUMBUM, SATURNUS.

ABACTUS, as Chambers informs us, was used amongst the ancient physicians for a miscarriage procured by art or force of medicines, and distinguish'd from ANORSUS, which is natural. But I have never, in any medicinal author, found the word in this sense, or any other. *Abactus Venter* is indeed quoted from an author of the lower ages as a phrase to signify a miscarriage, which I suppose led him or his author into the mistake.

ABACUS. A case of shelves. *Rulandus*.

ABACUS MAJOR. A trough used in the mines, wherein the ore is wash'd. *Rulandus*.

A B A

ABAISIR. The same as SPONIUM, which see.

ABALIENATUS, CORRUPTED (Celsus); and is used by other authors to express a part so utterly destroyed as to require immediate extirpation. Sometimes it is applied to the senses, both internal and external, when vitiated or totally destroy'd by diseases. *Scribonius Largus*.

ABANGA. Thus the inhabitants of the Island of St. Thomas call the fruit of the Palm-tree. C. Bauhinus calls this tree *Palma Ady Insule S. Thomæ*. The fruit is about the size of a lemon, and not unlike it. The inhabitants look upon the kernels of this fruit as an admirable restorative, and with this view they give, two or three times a day, three or four of these kernels to their sick.

ABAPTISTON, or ABAPTISTA, is used by some authors, particularly Galen, Fabricius ab Aquapendente, and Scultetus, to express the saw, Terebella, or perforating part of the instrument call'd Trepan, because 'tis generally contrived in such a manner as to prevent it from sinking suddenly into the skull, and wounding the brain, when the bone is cut through. Some have secured it by an edge round it, or wings on the sides; but the most common way is to make it conical, because then the part of the instrument above the perforation in the skull being thicker than the part which has cut through the bone, this artifice effectually prevents it from going too deep, and hurting the brain, or its membranes. But Mr. Sharp thinks all these precautions superfluous, and informs us; that the instrument made cylindrical answers all purposes best with a little care. It is derived from the negative A (*vide A*) and βάπτω, properly to *sink under water*, or to *sink under*.

As the bones of the Cranium are for the most part hard, they must be sawed by the Trepan. Here some, to avoid a slip in the operation, have invented a sort of Trepan which would not sink in too far, and for that reason gave them the name of *Abaptista*. The improvement consists in a sort of ring or collar that surrounds the Trepan a little above the point. *Galen de Meth. Med. lib. vi. cap. 6*.

ABAPTISTA are such as a little above the point have knobs on prominences sticking out, which hinder the Trepan from suddenly sinking into the head, and wounding the Meninx. *Æginet. l. vi. p. 90*.

ABARVS. A Scythian, said to have understood physic. He was a priest of the Hyperborean Apollo, and esteemed the author of many Talismans, which had the virtue of preserving cities from the plague for ever. He is represented as being very skillful at incantations, by Plato. Others say, that the Trojans bought the Palladium of him, which he made of human bones. His age is undetermined; some place him before the Trojan war, whilst others make him contemporary with Pythagoras. All the accounts of him are fabulous; but from these we may infer, he was a man very considerable in his time. *Schulzius*.

ABARNAHAS. This is a term used by some of the alchymists, particularly Senior Zadith, in the *Theatrum Chym.* vol. v. p. 205. He tells us it is the same as the full moon, or Magnesia. I believe he means the Philosopher's Stone; or some menstruum necessary for the transmutation of metals, because he calls it the sea, and the perfect and round stone. 'Tis used also much in the same sense by an anonymous author in the same collection and volume, said to be translated from the Arabic, p. 449. where he calls it the Divine Water, and Philosopher's Stone.

B

ABAR

ABARTAMEN. LEAD. Rulandus. See **PLUMBUM.** SATURNUS.

ABARTICULATIO, Ἀνάρθρωσις, Gr. A species of Articulation of the bones admitting of a manifest motion, call'd also by anatomists *Diarthrosis*, and *Dearticulatio*, to distinguish it from another sort of Articulation, which admits of a very obscure motion, or none at all, which is call'd *Synarthrosis*. See **ARTICULATION.**

ABAS. See **TINEA.** It sometimes signifies the Epilepsy. *Constantine.*

ABAVI, ABAVO, or ABAVUM. A large tree growing in Æthiopia, which bears a fruit like a gourd. *Ray's Hist. Clusius.*

ABBREVIATIO. The principal uses of medicinal abbreviations are in prescriptions. *Abbreviatio* is used by some of the alchymists to express a process in epitome, or a short way of performing it. See *Theatrum Chymicum*, vol. vi. p. 556, 557, 558.

ABDELAVI. An Ægyptian plant very like a melon, except that the fruit is more oblong, and acute at the extremities. *Ray's Hist.*

ABDITUS, included. Thus *abditus vesica* signifies included in a bladder, in *Scribonius Largus*.

ABDITI CAUSÆ, are the secret or remote causes of distempers, which the physicians of the dogmatic or rational sect affirmed were necessary to be known, in order to establish a right method of cure (*cum vero recte curaturum, quem prima origo causæ non sefellerit.* Celsus in his *Preface*). These causes cannot be understood without a knowledge of the principles of which our bodies are formed, and of the specific nature of sickness and health; for according to these physicians, 'tis not easy to accommodate remedies to distempers, without first knowing what health is, and the exact manner in which any distemper deviates from it.

Thus the gout is a deviation from health, which it would be less difficult to cure, if we knew precisely what constitutes health, and how the gout deviates from it in order to form a distemper. See **SECTÆ.**

ABDOMEN. Anatomists have generally divided the body into three great cavities, which they call *bellies*. The *head*, or the *upper belly*; the *thorax*, or the *middle belly*; and the *abdomen*, or *lower belly*. The Arabians, and some writers in the barbarous ages, call'd the *Abdomen*, or at least the external part of it, *Mirach*; and the *Peritonæum*, *Siphac*. *Zacutus Lusitanus.*

The *Abdomen* is accurately describ'd by Winslow thus.

The *Abdomen* begins immediately under the *Thorax*, and terminates at the bottom of the *Pelvis* of the *Ossa innominata*. Its circumference, or outer surface, is divided into regions, of which there are three anterior, *viz.* the *Epigastric*, or superior region, the *Umbilical*, or middle region, and the *Hypogastric*, or lower region. There is but one posterior region, named *Regio lumbaris*.

The *Epigastric* region begins immediately under the *Appendix eniformis*, at a small superficial depression, call'd the *Pit* of the stomach, and in adult subjects ends above the navel, at a transverse line, supposed to be drawn between the last false ribs on each side.

This region is subdivided into three parts, one middle, named *Epigastrium*, and two lateral, termed *Hypochondria*. The *Epigastrium* takes in all that space which lies between the false ribs of both sides, and the *Hypochondria* are the places cover'd by the false ribs.

The *Umbilical* region begins in adults, above the navel, at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two *Cristæ* of the *Ossa ilium*.

This region is likewise divided into three parts, one middle, which is properly the *Regio umbilicalis*, and two lateral, call'd *Ilii*, or the *flanks*, and they comprehend the space between the false ribs and upper part of the *Ossa ilium* on each side.

The *Hypogastric* region is extended downward from the inferior limit of the *Umbilical* region, and is divided into three parts, one middle, call'd *Pubes*, and two lateral, call'd *Inguina*, or the *groins*.

The *Lumbar* region is the posterior part of the *Abdomen*, and comprehends all that space which reaches from the lowest ribs on each side, and the last *Vertebra* of the back, to the *Os sacrum*, and neighbouring parts of the *Ossa ilium*. The lateral parts of this region are termed the *Loins*; but the middle part has no proper name in men.

Lastly, the bottom of the *Abdomen*, which answers to the *Pelvis* of the skeleton, is terminated anteriorly by the *Pudenda*, or parts of generation, and posteriorly by the *Clunes*, or buttocks, and *Anus*. The buttocks are separated by a *Possia*, which leads to the *Anus*, and each buttock is terminated downward by a large fold, which distinguishes it from the rest of the thigh.

This *Lumbar* region takes in likewise the *Musculus quadratus lumborum* on each side, the lower portions of the *Sacro-*

lumbares of the *Longissimi* and *Latissimi dorsi*, the *Musculus facer*, &c.

The space between the *Anus* and the parts of generation is called *Perinæum*, and is divided into two equal lateral parts by a distinct line, which is longer in males than in females, as we shall see in another place.

The cavity of the *Abdomen*, formed by the parts already mentioned, (all which are covered by the skin and *Membrana adiposa*) is lined on the inside by a particular membrane, called *Peritonæum*. It is separated from the cavity of the *Thorax* by the *Diaphragm*, and terminated below by the *Musculi levatores ani*.

This cavity contains the stomach, and the intestines, which are commonly divided into three small, named *Duodenum*, *Jejunum*, and *Ilium*, and three large, called *Cæcum*, *Colon*, and *Rectum*. It contains likewise the *Mesentery*, *Mesocolon*, *Omentum*, *Liver*, *Gall-bladder*, *Spleen*, *Pancreas*, *Glands of the Mesentery*, *Vasa lactea*, *Receptaculum chyli*, *Kidneys*, *Renal glands*, *Ureters*, *Bladder*, and the internal parts of generation in both sexes. *Winslow*, p. 111. tom. ii.

The principal *Arteries* of the *Abdomen* are these:

<i>Arteria Epigastrica superior,</i> which is the lowest portion of the <i>Mammaria Interna</i> .	<i>Arteriæ Spermaticæ.</i> <i>Arteria Mesenterica Inferior.</i> <i>Arteriæ Lumbares.</i>
<i>Aorta Inferior.</i> <i>Arteria Cæliaca.</i> <i>Arteria Mesenterica superior.</i> <i>Arteriæ Renales</i> , called <i>Emulgentes</i> .	<i>Arteriæ Iliacæ.</i> <i>Arteriæ Hypogastricæ.</i> <i>Arteriæ Epigastricæ Inferiores.</i> <i>Arteriæ Hæmorrhoidales.</i> <i>Arteriæ Pudicæ.</i>

The principal *Veins* of the *Abdomen* are these:

The inferior portions of the <i>Venæ Mammariæ Internæ.</i> <i>Venæ Renales.</i> <i>Venæ Lumbares.</i> <i>Venæ Spermaticæ.</i> <i>Venæ Iliacæ.</i> <i>Venæ Hypogastricæ.</i>	<i>Vena Portæ Ventralis.</i> <i>Vena Portæ Hepatica.</i> <i>Vena Mesaraica Major.</i> <i>Vena Splenica.</i> <i>Vena Mesaraica Minor sive</i> <i>Hæmorrhoidalis Interna.</i>
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The principal *Nerves* of the *Abdomen* are these:

<i>Nervi Stomachici</i> , form'd by the extremity of the <i>Sympathetici medii</i> , or eighth pair.	<i>Plexus Hepaticus.</i> <i>Plexus Splenicus.</i> <i>Plexus Renales.</i> <i>Plexus Mesentericus Superior.</i> <i>Plexus Mesentericus Inferior.</i>
<i>Nervi Sympathetici Maximi</i> , the inferior portion.	<i>Nervi Lumbares.</i>
The two <i>Semilunar</i> , or <i>Plexiform Ganglions</i> .	<i>Nervi Sacri.</i>
<i>Plexus Stomachicus.</i>	<i>Nervi Crurales</i> , their origin. <i>Nervi Sciatici</i> , their origin.

The whole fore part of the *Abdomen* forms an oblong convexity, like an oval vault, more or less prominent in the natural state, in proportion to the quantity of fat upon it, and of food contained in it, or to the different degrees of pregnancy in women. The *Hypogastric* and *Umbilical* regions are more subject to these varieties, than the *Epigastric* region.

On the sides, between the *Hypochondria* and *Ossa ilium*, or haunch, the *Abdomen* is commonly a little contracted; and backward, about the middle of the *Regio lumbaris*, it is gently depress'd, forming a kind of transverse cavity, answering to the natural incurvation of the *Lumbar* portion of the *Spina dorsi*.

This anterior convexity, and posterior cavity change as we sit, stand, kneel, lie at our full length, or with the thighs bent; and these variations depend on the particular situation of the *Ossa innominata*, in these different postures.

In standing, the convexity of the belly, and cavity of the loins, are more considerable, than in most other situations; for then the lower extremity of the *Os sacrum* is turned very far back, and consequently the *Os pubis* very much down. In this situation of the *Pelvis*, the *Intestines* fall naturally forward, and thus increase the convexity of the *Abdomen*; and as the *Vertebrae* of the loins are very much bent at the same time, the cavity in that place must likewise be very considerable.

In kneeling, the *Ossa pubis* are still lower than when we stand; and this not only increases the hollow of the loins, and throws the *Abdomen* and its *Viscera* more outward, or forward, but also, in some measure, strains the *abdominal* muscles; which is so uneasy to some persons, as to cause them to faint away.

This depression of the *Os pubis* in kneeling, depends partly on the tension of the two *Musculi recti anteriores*, the lower tendons of which are, in this situation, drawn with violence under the *Condylod pulley* of the *Os femoris*.

When we sit in the common manner, that is, with the thighs stretch'd out in a plane parallel to that of the seat, the convexity of the belly, and hollow of the loins diminish.

For the *Pelvis* being in this situation, supported on the *Tubercula ischii*, and these tubercles being very near the fore part of the *Pelvis*; the trunk of the body pressing on the *Os sacrum*, must lower the *Pelvis* behind, and raise it before.

When

When we lie upon the back at full length, and with the thighs extended, the belly is less convex, but more stretch'd and hard; whereas, when the thighs are bent, it is soft and lax. In this situation, the Regio lumbaris is almost flat, and very little depress'd.

When we lie on the back, and raise the head, or endeavour to raise it, we feel a tension in the fore part of the *Abdomen*, which increases in proportion to the force we use in raising the head.

These varieties of the external conformation of the *Abdomen* have a near relation to so great a number of other phenomena, in the animal œconomy of the human body, that it would require a whole volume to explain all the particulars thereof; neither are details of this kind very proper in a work designed to be purely anatomical, in which, consequently, the main business is to give a full and accurate description of the true structure of the parts, and only to point out in general their principal uses.

Fewer Papillæ appear in the skin of the belly than any-where else. The anterior portion of it is not only thinner and more compact than the posterior, but it has this likewise peculiar to it, that it may be naturally increased very much in breadth, and sometimes in a very extraordinary manner, without losing any thing of its thickness, in proportion to what it gains in breadth.

This peculiarity likewise belongs to the Epidermis. I here speak only of what is observable in the natural state of corpulency or pregnancy; but I have not as yet been able to discover what it is in the texture, or structure of this skin and the Epidermis, on which this peculiarity depends. All that I have been able to remark about it, was in the dead body of a woman, whose belly was contracted and fallen; namely, that on the surface of the skin there was a great number of lozenges disposed in a rectangular manner.

The marks of these superficial lozenges were in the Epidermis. They were composed of several fine lines, which all together extended to a sensible breadth. The areas or meshes of these lozenges, which seem'd to be about the sixth part of an inch in breadth, were very flat and thin.

In the manner which Steno used to open bodies, by making two longitudinal incisions in the integuments, and so leaving a middle band made up of the skin and fat, in their true places, it is easy to demonstrate the union of the Aponeurotic or tendinous productions with the arteries, veins and nerves, in order to form the skin of the *Abdomen*; and the same use might be made of this method, in other parts of the skin.

The cells of the Membrana adiposa, which covers the convex part of the *Abdomen*, are disposed in a very regular manner, as I have discover'd by my method of opening bodies. This method is to make two oblique incisions in the integuments, from the navel to the groins, and to separate this angular portion of the integuments, and throw it down over the parts of generation, that they may be cover'd, during the demonstration.

This triangular portion being thus inverted, there appears on the inner surface of the Membrana adiposa, a longitudinal line, like a kind of Raphe, produced by the meeting of these cellular rows, which form angles successively, one above another, opposite to the Linea alba of the *Abdomen*. The cells in these rows are more oblong than the rest, and in a manner oval, or like a grain of wheat.

The Appendix ensiformis of the Sternum, the cartilaginous portions of the last pair of true ribs; those of the first four pairs of false ribs, all the fifth pair, the five Lumbar vertebrae, the Ossa innominata, the Os sacrum, and Os coccygis, form the bony sides of the cavity of the *Abdomen*.

The diaphragm, the muscles called particularly Musculi abdominis, the Quadrati lumborum, Psoai, Iliaci, the muscles of the Coccyx, and of the Intestinum rectum, form the chief part of the circumference of this cavity; and its whole inner surface is lined by a membranous expansion, term'd Peritonæum, all these parts being covered by the integuments already spoken to. As additional, or auxiliary parts, we might likewise add some portions of the Sacro-lumbares, Longissimi dorsi, Vertebrales, Glutei, &c.

The cavity of the *Abdomen* is of an irregular oval figure, but still symmetrical. On the fore-side it is uniformly arched or oval, and its greatest capacity is even with the navel, and nearest part of the Hypogastrium. On the upper side it is bounded by a portion of a vault, very much inclined. On the back-side, it is in a manner divided into two cavities by the jutting out of the Vertebrae of the loins. On the lower side, it contracts gradually all the way to what I call the little edge of the Pelvis, and from thence expands again a little, as far as the Os coccygis, and tubercles of the Ischium, terminating in the void space between these three parts. *Winslow, 128 ad 130.* part ii.

As wounds of the *Abdomen* differ in some respects from other wounds, I shall insert in this place the surgical treatment that is peculiar to them.

Wounds of the *Abdomen* may be divided into four sorts.

1. Such as affect the integuments alone.
2. Such as affect the muscles, together with the integuments, without penetrating the peritonæum.
3. Such as with the integuments penetrate into the cavity without wounding any of its contents.
4. Such as penetrate into the cavity, and wound some or other of its contents.

The first sort, or superficial wounds of the *Abdomen* are not esteemed dangerous, and require no treatment different from other wounds. However Arcæus (l. ii. c. 4.) and Vigo (l. iii. c. 11.) agree in pronouncing those more liable to bad accidents which are received within two or three fingers of the navel. And our countryman Wiseman, from Galen, tells us, "That wounds in the middle of the belly are worst, by reason of the nervous body that lies there, and consequently more painful to be stitch'd, and more difficult of cure, because of the intestines and cawl pressing upon that part." I suppose he means by *their nervous body*, the membranous tendons of the oblique ascending, descending and transverse muscles, which are inserted into the *Linea alba*.

These wounds are easily distinguishable from the other three sorts by inspection; but the probe readily puts it beyond all doubt.

The second sort are distinguished from the two last by the probe; for if the patient is carefully placed in the situation he was in when the wound was given, and the probe introduced, it will generally pass into the cavity of the *Abdomen*, if the Peritonæum is perforated. Another way of distinguishing these wounds is by injecting warm water into them, and then if it returns immediately, there is reason to believe the wound only muscular; but if any considerable part remains in the wound, it has certainly penetrated the cavity.

It will also give us some light into the nature of these wounds, to compare the wounding instrument with the direction of the wound.

Some farther direction we may have by viewing also the instrument immediately, where it can be found; when if it was not designedly wiped or cleaned before, we may sometimes discover how far it has been stained by the blood or Halitus of the body, which will give us more light as to the depth, than the outward dimensions of the wound. *Turner.*

This was practised in the case of Henry III. of France, where the knife which the villain made use of was found to be a foot long, and bloody for the breadth of four fingers. *Dionis.*

The cure of these wounds is rendered more difficult by their perpetual motion in respiration, and the necessity of straining more or less for a stool.

If such a muscular wound reaches pretty near to the Peritonæum, the integuments in that part being weakened, and the Peritonæum capable of great distension, there is danger of a Hernia succeeding. As soon therefore as the surgeon is satisfied in regard to the nature of the wound, his next consideration must be, whether a suture is necessary, or whether bandage alone is sufficient to guard against a Hernia.

When the wound is small, or in a longitudinal direction, a Suture is frequently superfluous, and even mischievous, by bringing on great inflammation and pain, and then bandage is sufficient to guard against a Hernia.

The dressings must be the same as in a common wound, (see VULNUS) and the lips must be united by the double-headed roller, or Fascia uniens, and then the whole secured by the Scapular with the napkin, or Mantile cum scapulari. See BANDAGE.

But when a wound is very large, transverse, or oblique, a Suture is necessary to guard against a Hernia, which is thus performed.

Take two crooked needles, threaded with a strong thread as many times doubled as will secure it from breaking, that is, two, three, or four times, and let it be waxed; then pass one of these needles through the muscles, fat and skin, from the inside of the wound outwards, the breadth of an inch from the edge of the wound, lest the stitch should break out, always beginning at the superior lip of the wound; and then pass the other needle in like manner through the inferior lip, always leaving a sufficient length of thread at each extremity. If the wound is not above two inches long, one stitch is sufficient; but if longer, more stitches are to be made at about the distance of an inch from each other. When all the stitches are pass'd, an assistant must press both edges of the wound together, whilst the surgeon ties the threads, first with a simple, and then with a bow-knot, that it may be relax'd upon occasion. The knots are to be made upon the wound; but must be secured from hurting it by placing a small bolster of linen, or silk wax'd, betwixt the wound and the knot.

When the Suture is finish'd, proceed as in the cure of a common wound, with respect to dressings, and secure the whole with the double-headed roller, or Fascia uniens, and Scapular with the napkin, or Mantile cum scapulari.

Tents in this case are superfluous, and even dangerous. Some farther precautions ought to be taken in order to guard effectually

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effectually against a Hernia. Thus bleeding is seldom omitted; and the patient must not be suffered to sneeze, cough, or strain hard for a stool; first, because these would endanger a Hernia; and secondly, because during these efforts, the stitches of the Suture would be subject to break.

The best way of preventing a cough is to bleed, and take occasionally a small quantity of *syrupus e meconio*. Sneezing, if there is any tendency towards it, may be prevented by snuffing up the nose a little warm milk.

The patient may be secured against costiveness, by emollient clysters, and a spare laxative diet, consisting altogether of liquids.

We may know, that a wound has penetrated into the cavity of the *Abdomen*,

1. If the finger, or probe, passes very deep into it, when the patient is plac'd in the posture he was in when he received the wound.

2. If part of any liquor injected into the wound does not immediately return.

3. By comparing the wounding instrument with the direction of the wound. That is, if the instrument is sharp, and its direction strait forward, there is reason to suspect it has penetrated the cavity; but the contrary, if the instrument is somewhat blunt, and its direction either upwards, downwards, transverse, or oblique, and by examining how far the instrument is stained.

4. If any of the contents of the *Abdomen* appear out of the wound, the case is out of dispute. Sometimes a piece of fat will be protruded out of the wound, and in some degree resemble the Omentum, from which it is distinguish'd by the smoothness of its surface, that of the Omentum being unequal.

The contents of the *Abdomen*, which usually appear at the wound, are,

1. The Ros abdominis, or fluid separated from some glands in the *Abdomen*, for the lubrication of the Viscera or bowels contained in it.

2. Grumous blood, or large quantities of florid blood, if a large artery is penetrated; or blackish blood, if a vein is wounded.

3. Some one or more of the Viscera, which generally are the Epiploon, intestines, or both.

But because 'tis possible that a very thin-pointed instrument may penetrate the cavity of the *Abdomen*, and wound some of its contents, and leave the orifice so small, that a surgeon may not be certain that it has passed through the Peritonæum, by the signs described above, it may be proper in this place to insert the symptoms that generally attend a wound of the particular contents of the *Abdomen*.

In case the liver is wounded superficially, the external parts about the region of the liver and stomach are drawn inwards to the back, in order to fix the liver and adjacent parts as much as possible, that the pain may not be increased by their motion, which notwithstanding is very pungent on the right side, and in some cases extended as far as the neck. Mean time blood is discharged by vomit and by stool. The case is also attended with frequent faintings, a fever and looseness.

But if the wound penetrates deep into the liver, all these symptoms are increased, till at last the patient vomits bile, and falls into frequent and violent faintings, and cold sweats, the forerunners of death. From the beginning the patient receives a sort of pleasure by lying on his belly.

The same symptoms attend a wound of the spleen, except that the pain is on the left side.

A wound of the stomach is attended with frequent bilious vomiting and hiccoughs; whatever aliment is taken into the stomach, is immediately discharged again by vomit; and sometimes convulsions and cold sweats on the extremities come on, the presages of death. Mean time the aliment passes through the wound into the cavity of the *Abdomen*, and makes the belly swell, especially that part of it near the stomach. If the wound is near the orifice, 'tis reckoned mortal.

A wound of the small intestines is attended with an acute pain, continual bilious vomiting, and chyle is discharged from the wound into the cavity of the *Abdomen*, which makes it swell, as in wounds of the stomach.

In wounds of the large intestines, the symptoms are less violent, and generally excrement is discharged, or the smell of it is perceived, at the external orifice of the wound.

When a kidney is wounded, a pain is felt in the groin, as well as in the part affected, which is propagated to the testicles. A difficulty in making water ensues, and sometimes the urine is bloody, sometimes blood alone is discharged instead of it.

Wounds of the ureters are attended with much the same symptoms, except that the urine is discharged into the cavity of the *Abdomen*, and stagnating there, putrifies, and makes the belly swell considerably.

A wound of the bladder is distinguished by a pain about the region of the Pubes, and at the same time, either a suppression of urine, or a discharge of it mix'd with blood, bilious vomiting, and hiccough.

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When the Uterus is wounded, a great pain is felt in the part, which is propagated to the Os pubis, and loins, the patient vomits incessantly, and blood is discharged from the Pudenda.

A very acute pain under the pit of the stomach, or at the spine almost opposite to it, slow respiration interrupted with sobbing, and hiccough, convulsions, delirium, want of sleep, and great anxiety, are symptoms which accompany a wound of the diaphragm, by which it may be distinguish'd from others.

If none of these symptoms appear; and yet the patient feels violent pain, we are to conclude some large nerve or nervous part is wounded, particularly the mesentery.

Continued heat and thirst, great anxiety, a quick, or intermitting pulse, uneasy and laborious respiration, and frequent fainting, with an elevation or tumor of the *Abdomen*, are signs of a considerable internal hæmorrhage, from a wound of some large vessel.

If any of the above-mentioned symptoms appear, there is reason to fear the wound penetrates into the *Abdomen*; tho' it cannot be discover'd by the probe, injections, or egress of any of the contents thereof.

But if all the symptoms are favourable; if there is little or no pain; no fever, or a very slight one; little or no inflammation; if no blood is discharged when the patient lies upon the wound, and liquors injected return unalter'd, we may reasonably hope, that none of the Viscera contain'd in the *Abdomen* are injured.

When the surgeon is satisfy'd, that the Peritonæum is perforated, and neither the Epiploon nor intestines come out of the wounds, he is to consider whether a Suture is necessary or not.

A Suture is superfluous, when the wound is small, or longitudinal; for in these cases the intestines and Epiploon may be secured from falling out in the following manner: First introduce a soft tent into the inferior part of the wound, and lay over it an adhesive plaister. Then keep the lips of the wound together by bolsters, a little larger and longer than ordinary, laid on each side, and secure the whole with the double-headed roller or Fascia uniens, and upon that the Scapular with the napkin; then bleed the patient, direct an exact regimen, and let him rest upon the wound.

In this case, the first dressing is not to be removed for three days, unless some bad symptom makes it necessary; and afterwards it will be sufficient to dress once a day, or every other day, doing it more frequently being likely to retard the healing of the wound.

This is the opinion of Heister, and the reasons he gives for it are, the difficulty of making a Suture in these parts, especially in fat subjects, and the pain and inflammation it causes. He therefore concludes, that a surgeon would be guilty of a piece of cruelty, in giving his patient the unnecessary pain and trouble of a Suture, when he may be cured without it.

The same author thinks the Suture absolutely necessary, when the intestines cannot possibly be retained in their proper situation without it; and when the wound is large, transverse, or oblique, even though the Peritonæum remains intire.

Boerhaave is of a different opinion from the author above-mentioned; his general directions are to make a Suture. He tells us the part must be immediately defended from the air; and if any air is got into the *Abdomen*, it must be got out again by suction, and making strong efforts in expiration; probably for fear it should rarefy in the cavity, and cause a sort of Tympanitis; mean time it should seem necessary to secure the contents of the *Abdomen* in their proper places, by applying a linen cloth to the wound, strong enough to sustain the pressure of the intestines and Epiploon against it during these efforts, and thin enough to permit the egress of the air.

Fallopious, Guido de Cauliaco, Chalmet, Fabricius ab Aquapendente, Theodorice and Roland recommend the Suture universally, in penetrating wounds.

When a Suture is necessary, it must be perform'd in the manner directed above for muscular wounds of the *Abdomen*, with this farther caution, that the needles must be first pass'd through the wounded edges of the Peritonæum, which must be stitched together with the muscles, fat, and skin. The lips of the wound must also carefully be laid hold of and drawn asunder, and the point of the needle must be industriously covered with the fore-finger, in order to secure the intestines from being wounded.

The French surgeons have contrived an instrument for making these Sutures more commodiously, which they call Portaguille. This is intended as a kind of handle or Manubrium for the needle, to prevent it from hurting a surgeon's hand when a considerable force is required to thrust it through the Peritonæum, muscles, and skin; and in this case the convenience of the surgeon promotes the interest of the patient, the operation by this means being sooner perform'd, and consequently with less pain.

Heister advises to begin tying the threads of the Sutures at the upper part of the wound, when there are more than one, and to proceed regularly downwards, introducing a soft tent, arm'd with some digestive balsam, about the thickness of the little

little finger, into the wound at the lower extremity, before the last thread is tied, that any impurities contained in the wound may come away before the wound is closed. A thread must be fastened to the tent, which must be left hanging out of the wound, that it may be pulled easily out of the *Abdomen*, if it should happen to sink into it. Boerhaave, Garengot, Belloste, and many others forbid the use of tents, and some of them produce cases in confirmation of their opinion, of which I shall produce two, one on each side the question.

From HEISTER.

Some modern surgeons, and particularly Garengot in his chapter of *Gastroraphia*, discard the use of tents in wounds of the *Abdomen*. In imitation of their example, in the year 1734, a young surgeon in a neighbouring city tried the experiment on a young man, who received a wound, by a sword, between the navel and the Pudendum, the cut penetrating into the *Abdomen*. The first two days the patient seemed to be in a fair way; but died on the fourth day after he had received the hurt. His body being opened, a vast quantity of putrid matter was found in the *Abdomen*, and the cawl was quite rotten. All besides was whole and sound, and nothing of a hurt or scratch appeared. Had this been kept open with a tent, the bloody and purulent matter might have been drawn out, which being retained, for want of the aforesaid help, without doubt killed the patient. *Heister*.

In the year 1688, a soldier of the regiment of Montferrat, called Sans Soucy, was wounded by a bullet, which entering before at the region of the navel, came out behind at that of the reins, piercing the Ureter as it passed along. He was at first dressed by one of the master-surgeons of Turin, who used to assist us; which he performed after his own way.

The orifice which was in the belly, notwithstanding the tents which he used, was closed up, after the falling off of the Eschar of the teguments; but it fared otherwise with that in the back; for that surgeon was careful to keep it open with a thick and long tent, hindering also the reuniting of the Ureter, which occasioned the urine to come forth at the wound. I having seen him one day, advised the surgeon speedily to take away the tent, if he would avoid an incurable Fistula, but my words were to no purpose; for had he complied with them, he would have thought he had offended against the rules of art, and ancient received maxims, with which my advice was inconsistent.

Some days after, seeing this wound in a very bad condition, being covered with a whitish flesh, almost without sense, and ready to become a Callus, I was willing to prevent the fatal consequences of that indiscreet dressing; wherefore with a dissolved caustic I consumed all that appeared callous about the lips of the wound, causing also some of it to pass into the cavity thereof; and leaving out the tent, I expected the discharge of what the caustic had mortified. When the flesh had regained its usual colour, without loss of time I syringed into the wound some balsamic water. I also used the balsam of Peru alone for some days, and after that, the styptic plaister of Crollius, with little longish compresses that were placed on the two sides of the wound, to press together the brims. Thus the wound began to be filled up, and the urine did by little and little resume its former course; and in about eighteen or twenty days, the wounded person was perfectly cured.

In the progress of this cure, may evidently be perceived the difference between the method used by many surgeons fondly conceited of their own opinions, and that I practise; for, in this case, had the first been continued but for eight days time, the wound had become either extremely difficult, or impossible to be cured. This is confirmed by the wound in the belly; the speedy cure whereof is to be attributed to the motion of the Intestines, which, contrary to the design and desire of the surgeon, expelled the tent so soon as applied, in such sort, that it was completely cured a little after the falling off of the Eschar.

Wherefore we can never too much blame those who are so obstinately wedded to the use of tents in wounds of the lower belly; they ought altogether to be laid aside, in spite of all the objections may be made in their behalf, for which, undoubtedly, there is no real ground. Experience gained by practice has so undeceived me, touching the use of tents, that I have left off the use of them, not only in the lower belly, but even in all other places of the body, unless upon a very pressing necessity. But in the wounds of the emulgent vessels of the reins, ureters, and bladder, as also in those of the joints, they occasion accidents which oftentimes prove mortal; or otherwise, leave behind them infirmities that ever after render life miserable. *Belloste*.

Fallopian is of opinion, that though some extravasated blood should putrify in the *Abdomen*, it can do the Intestines and other Viscera no hurt, but will subside to the Inguina, and there form an abscess. But that it is more likely to be absorbed by the vessels, and discharged by stool, before it putrifies at all. Chalmet and J. deVigo seem to be of the same opinion, as is Albucasis, to which F. abAquapendente seems to assent, though he seems before to be apprehensive lest the blood extravasated into the *Abdomen* should cause a dropsy.

From these cases we may infer, that tents are sometimes necessary, sometimes superfluous, and even dangerous. It must therefore be left to the judgment of the surgeon to determine when to make use of them, and when to discard them. When he has reason to think any thing is contained in the *Abdomen*; which ought to come away, or that the putrefaction will be considerable, he will do well to keep open the lower part of the wound with a tent, for some little time. Mean while it is certain, a tent must in every other respect be prejudicial; and therefore must be omitted, when there is nothing considerable to be discharged by the orifice it is intended to keep open.

Upon the whole, we may venture to say, that the use of tents in general has done a great deal of hurt; but that some cases occur in practice, that make it imprudent to prohibit the use of them intirely. See TENT.

Gabriel Ferrara in his *Sylva Chirurgica*, Botallus in his *Tra-ctise de Sclopetorum Vulneribus*, Arcæus, and Paré, agree in advising the use of tents, till the *Abdomen* is cleared of all manner of Sordes.

When the Suture is finished, the wound should be anointed with some vulnerary balsam, as in other wounds, and pledgets of lint laid upon it, which must be kept on by some adhesive plaister; and upon these proper bolsters must be placed to keep the lips together, and the whole must be secured with the bandage mentioned above; and the belly should at every dressing be swathed round, not only for the security of the dressings, but also for the support of the parts in case of coughing, sneezing, and going to stool; but not so tight as to cause pain or uneasiness.

Heister advises to take off the dressings every day, and let the patient lie for some time upon the wound, after the tent is taken out, that the impurities may discharge themselves; and if these appear in any considerable quantity, he advises to inject into the orifice twice or three times before the dressings are again put on, a decoction of some vulnerary plant, as Agrimony, Sanicle, or St. John's wort, with a little Mel rosarum, somewhat warm; and then the patient must be laid upon the wound in such a situation, as to suffer it to be discharged again after every injection, together with the blood, pus, or whatever ought to come away.

After this, a fresh tent, armed as before with a digestive, is again to be introduced, and the dressings are to be renewed; and this is to be repeated every day, till it appears, that little or no impurities remain in the *Abdomen* to be discharged; and then the tent is to be used no more, but the orifice is to be carefully healed up, as in other wounds.

Other chirurgical writers utterly disapprove the use of injections, because, in their opinion, they only irritate the wounded parts, and retard their union; and besides this inconvenience, are attended with that of being very difficult sometimes to get out of the *Abdomen* again. They are also said to relax the parts too much, and to destroy the natural balsam which should promote the union of the part.

Turner advises, at each dressing, to apply three or four warm stuphs expressed from the hot decoction of mallows, mullein, St. John's wort, centaury, with the flowers of chamomile, elder, and melilot, made in spring water, with the addition of a little brandy at the time of using.

Boerhaave advises to dress but seldom, and is certainly right, where, according to his system, no tents are made use of.

But all chirurgical writers agree, that repeated clysters do a great deal of service; that a mild, relaxing, and very parsimonious diet, is of great importance in the treatment of these wounds; that very little, or no solid food should be allowed; that broths are the best sort of aliment during the whole course of the cure, as generating less Forces than any thing else, provided no accidental circumstance make them improper; and that rest, and lying upon the wound, with a soft pillow laid under it, accelerates the cure very much, as it serves as a kind of compress to keep the lips of the wound together, and as the posture favours the egress of any thing that ought to be discharged by the wound.

Palfyn prefers the Quilled Suture, or Sutura clavata, to that described above, as better securing the stitches from tearing out, during the motion of the *abdominal* muscles in respiration, rising up, coughing, sneezing, or straining for a stool. *Vide SUTURE.*

But most other surgeons reject this Suture, as causing by the extraordinary pressure, pain, inflammation, and other bad accidents. *Dionis*.

In case a wound of the *Abdomen* is attended with an acute pungent pain, a considerable fever, an elevation and hardness of the belly, great internal heat, thirst, want of sleep, weakness, uneasiness, and anxiety, a very quick or intermitting pulse; if a large quantity of blood, ichor, the aliment as received into the stomach, chyle, bile, pus, urine, the excrement, or the smell of it, are discharged from the wound; but especially if paleness, cold sweats, and frequent faintings, come on soon after the wound is received, we may be sure some considerable vessel, or some of the Viscera of the *Abdomen* are wounded.

A careful attendance to the external part wounded, compared with the situation the patient was in when he received the wound, and with the wounding instrument, will assist us in forming a judgment of the part that is hurt. And these circumstances again compared with the symptoms usually attending wounds of the particular Viscera, as given above, and with the discharge from the external orifice, reduces it near to a certainty.

These wounds create great trouble, and are attended with some circumstances that render them very dangerous.

It is known to anatomists, that the circulation of the blood from the Viscera of the *Abdomen*, by the Vena porta, to the liver, and afterwards in the liver, is carried on, or at least greatly promoted, by the alternate compression which the contents of the *Abdomen* receive from the diaphragm, and *abdominal* muscles. And they who have been much concerned in dissections of living animals, have observed, that when the cavity of the *Abdomen* is exposed to the air, this circulation of the blood towards the liver by the Porta, is greatly impeded, or totally obstructed.

Hence it follows, that in proportion as the action of the muscles of the *Abdomen* is impaired, and the cavity laid open, this circulation, so necessary to the animal œconomy, must be obstructed.

These wounds are also dangerous, in proportion as the function of the wounded bowel is necessary to health and life.

Another inconvenience attending these wounds is, that the extravasated blood, now exposed to the air, corrupts, and corrodes the intestines, and other adjacent parts to which the fineness of their texture renders them subject.

Nor is this the only injury which the patient receives from the air; for when it is included in the *Abdomen*, the heat it meets with there rarefies it more or less, and then it interferes with the action of the particular bowel or bowels it presses upon.

Hence it happens, that these wounds frequently become mortal.

If any of the *abdominal* Viscera receives a wound so considerable as to be seen, or come at with the fingers, at the first dressing the wound must be stuffed gently with lint, dipped in highly rectified spirit of wine, or spirit of turpentine, which is to be secured with compress and bandage; for this is generally sufficient to stop the flux of blood, unless some very large vein or artery is laid open. In the subsequent dressings the same method is to be pursued as is directed above.

But in case the injury lies so deep as not to be come at, the surgeon's care must be directed to the management of the external wound, which must be kept open with tents so long as any impurities are discharged from the wound, and vulnerary injections must every day be thrown into the *Abdomen*, so long as the perforated bowel discharges any thing into the *Abdomen* which ought to be brought away.

Mean time, an exact and sparing regimen must be observed, the patient must be let blood occasionally as the degree of inflammation requires, emollient and carminative clysters must be from time to time administered, and he must be confined to his bed, and enjoined strictly to abstain as much as is possible from motion even there.

The medicines in general must be vulnerary and balsamic. But I must refer the reader to the article of WOUNDS for particular ingredients and forms.

The Intestines, and Epiploon, or Omentum, are the parts which usually protuberate out of a wound in the *Abdomen*, and require a particular management. But as the sentiments of authors with respect to the treatment of these cases, are very different, I shall give the sum of what Celsus, Boerhaave, and Heister, have said on this subject, as they are writers of good authority, and seem to have collected from, or examined carefully the best of their predecessors.

Sometimes the belly receives a wound, and the intestines fall out through the orifice: The surgeon is then immediately to consider, first, whether they are injured; and then, whether they preserve their colour. If one of the small Intestines is pricked, there is nothing to be done; a great intestine may be sewed up, not that we can warrant a cure, but because doubtful hope is better than absolute despair; for sometimes the gut unites and heals. If any of the Intestines are livid, pale, or black, and, what necessarily follows in such cases, void of feeling, all remedies are useless. If their colour be not altered, be very speedy with your assistance; for the outward air, to which they are utter strangers, changes them in a moment.

The patient then must lie upon his back, with his hips somewhat raised; and if the wound is too small for the intestines to be put back in their proper place, it must be enlarged with the knife. If the intestines are dry, you must moisten them with water, mixed with a very little oil. Then must the assistant with his hands, or two hooks, that take hold of the inner membrane, gently open the lips of the wound, and the surgeon must take care to put in those Intestines first which fell out last, that each fold may lie where it was before.

When they are replaced, the patient must be gently shook, by which means the Intestines will retire back to their proper places.

The Omentum, or Cawl, is next to be considered, of which if any part be black and mortified, it must be cut off with the scissars; and whatever part of it is sound, put gently back upon the Intestines.

As to the Suture, it is not sufficient to sew either the outward skin or the inner membrane alone, but both must be united. Two threads must be used, and the stitches sewn thicker than for other parts, because they are subject to be broken by the motion of the belly; and besides, this part is less liable to inflammations than others. Two needles then are to be threaded, and held in both hands, and the inner membrane must be first sewn after the following manner: Begin at the extremity of the wound, and pass the needle in your right hand through the left lip of the wound, and the needle in your left hand through the right lip, from the inner to the outer part of the lips, by which means the point will always be farthest from the Intestines, and the blunt end nearest. After you have passed once, you are to change hands with your needles, that is, the needle that was in your right-hand must come into your left, and your left-hand take that which was in your right; and so for every pass till the wound is sewn up. After this, the same needles and threads must be used to the skin, which must be also sewn in the same manner; the needles always passing from the inner to the outward part, and shifting hands every pass as before. Then agglutinants are to be applied, and upon these a sponge or greasy wool (*Lana succida*) first dipped in vinegar, and then squeezed; after which an easy bandage is to be applied. *Celsus, lib. vij. cap. 16.*

If the wounded Intestines present themselves at the external orifice, they must be sewed up if the wound is large; but if small, they may be replaced without Suture; and the rest of the cure is then to be performed in the manner the reader has before been taught.

If any of the Intestines are protruded out of a large wound, they must be fomented with living animals, just slit and applied to them; or with proper fomentations, amongst which the following is recommended.

Take the clean intestines of any young animal just killed, boil these three or four minutes in a proportional quantity of water;

Then add to it half a handful of the flowers of chamomile, lavender, and centaury, and one handful of mint-leaves.

Let these stand in infusion about three or four minutes longer.

The liquor of this decoction is to be applied by means of stuphs.

If these ingredients are not at hand, warm new milk will answer the end.

But if the wound is small, and the Intestines so much swelled by wind, inflammation, or excrement, that they cannot be reduced, the surgeon must endeavour to discuss the wind, or soften the part by carminative or emollient fomentations; or if that is ineffectual, small perforations may be made in the Intestine with a needle, to let out the included wind. The last refuge is to dilate the wound.

This must be done with a great deal of care, and is a hazardous operation, because the Intestine is in the way, and in danger of being wounded. The surgeon for this reason must introduce a Director, and cut upon it.

If any part of the intestinal tube is cut away by the wounding instrument, or is lost by suppuration, or gangrene, the superior part of it, that is, the part nearest the stomach in the course of the Intestines, though it may happen to be the inferior part with respect to their present situation, is to be found, and sewed to the orifice of the wound.

In this case the patient must frequently submit to the necessity of parting with the excrement by the wound as long as he lives. *Boerhaave.*

This was the case of an inn-keeper at Rotherham, which may be worth relating as it is somewhat uncommon. And to the best of my remembrance was thus, as related to me by the surgeon that attended him; for I was not acquainted with the man himself till some years after he was recovered.

He was first seized with a violent pain about the mid-way betwixt the Umbilical region and Os pubis, three inches on the right side the Linea alba. A considerable tumour at last appeared upon the part, which broke of itself; and by a large discharge of excrement, mixed with pus, convinced the surgeon the Intestine was perforated. The dressings, as far as I could learn, were nothing different from those generally applied upon the breaking of a common abscess; and no care was taken to unite the orifice of the Intestine with that of the ulcer. However, I knew him many years after this, with all the appearances of being hearty and in full health, and with no other inconveniences remaining from this accident, than those of parting with some excrement every day at the ulcer,

ulcer, and of being sometimes put out of countenance by a sudden eruption of wind, which, for want of a sphincter, it was not in his power to prevent.

Of the same nature is the case of Margaret White related by Mr. Cheselden.

In the fiftieth year of her age she had a rupture at her navel, which continued till her seventy-third year, when, after a fit of the colic, it mortified; and she being presently after taken with a vomiting, it burst. Mr. Cheselden went to her, and found her in this condition, with about six and twenty inches of the gut hanging out mortified. He took away what was mortified, and left the end of the sound gut hanging out at the navel, to which it afterwards adhered. She recovered, and lived many years after, voiding the excrements through the Intestine at the navel; and though the ulcer was so large after the mortification separated, that the breadth of two guts was seen, yet they never at any time protruded out at the wound, though she was taken up out of her bed, and sat up every day.

If the Omentum is thrust out of the *Abdomen*, and continues warm and moist, and the arteries appear vivid and red upon it, it must be immediately replaced, either with or without dilating the wound.

But if the surgeon finds it dry, cold, and livid, he must make a ligature upon the sound part, and cut off all that is mortified, and then replace it, after having fomented it in the manner directed above for the Intestines.

When the surgeon has performed his duty, the physician will find his account in plentiful bleeding, which is the most effectual preservative against inflammation, gangrene, and fever. Clysters are also in the beginning excellent, provided the large Intestines remain intire; but are not so proper when those are perforated, because a clyster, or part of it, may pass through the wound of the Intestine, into the cavity of the *Abdomen*, and there cause a great deal of mischief.

The following form of a clyster is recommended by *Boerhaave*.

Take of barley water seven ounces, honey three ounces, common salt a dram.

Let such a clyster be given every morning and evening for the first three days.

The diet during the whole cure should be of broths only, with a little salt.

The following observations from *HEISTER* will illustrate the surgery of the *Abdomen*.

In wounds which penetrate into the cavity of the *Abdomen*, the first thing to be considered is, whether the Intestines or Omentum come out of the wound or not. If they do not, the wound must be compressed on each side by the hands to keep them in, whilst the patient is laid on his back with his hips somewhat higher than his head, till the wound is taken care of, in such a manner, that the Intestines and Omentum are no longer in danger of falling out.

But when they are already protruded out of the wound, immediate assistance is necessary, because the air inclines them to mortify in a very little time. The surgeon then must first examine whether they remain intire, and whether they preserve their natural heat and colour. For if they are wounded, or appear cold, livid, and dry, they must not be returned into the *Abdomen*, till they are treated in the manner to be described hereafter.

An unusual flaccidity of the intestine protruded out of the wound, is a sign, that either the part exposed, or else some other part of the intestinal tube, is wounded. If therefore the part in view is collapsed, but appears intire, the rest of the Intestines must be gently drawn out of the external wound, that the perforated part may be found, and treated properly.

If it appears, that the intestines are neither wounded, cold, livid, nor dry, they must be immediately returned into the *Abdomen* in this manner:

Place the patient in such a situation as is described above, for preventing the Intestines from falling out; but let him be turned a little to the right side, if the wound is on the left; and on the left side, if the wound is on the right. Then let an assistant separate the lips of the wound with his fingers, or proper hooks, whilst the surgeon thrusts the protruded Intestine into the *Abdomen*, with the fore-finger of each hand, which must act alternately, one being never removed from the orifice of the wound, till the other supplies its place, otherwise the Intestine would be likely to come out again. Mean time it must be recommended to the patient to forbear respiration as much as is possible.

If the Intestines are cold and dry before they are replaced, they must be fomented with warm water, or milk, applied by means of linen stuphs, or a sponge, or in a bladder; or else they must be wrapped in the warm Omentum of a calf, lamb, swine, or some other animal just killed, till their natural heat and colour are restored; for without it there are no hopes of a cure.

However, if the dryness and coldness are moderate, and the Intestines not yet mortified, they ought to be immediately replaced,

the natural heat and moisture of the *Abdomen* being more effectual for their recovery, than all fomentations whatever.

If the Intestine protruded out of a small wound, is so distended with wind, that it cannot commodiously be returned, it will not be amiss to pull a little more of the Intestine out of the wound, that the Flatus being distributed into a larger space, may render the reduction thereof more easy. Then the assistant must keep the lips of the wound, and divided parts of the Peritonæum asunder, either with his hands or hooks, whilst the surgeon returns that part of the intestine first which came out last, that their natural order may be preserved when replaced. This done, the Intestine must be secured from falling out again by the hand, till the wound is filled with twisted lint, or a soft tent, if any considerable quantity of blood remains extravasated in the *Abdomen*; these must be secured by plaisters, bolsters, and bandage. The patient mean time must be kept very quiet, and must lie as much as is possible upon the wound.

After the first dressing, the wound is to be dressed once or twice a day, if there is a great discharge of matter, with some vulnerary balsam. By this method these small wounds may be cured without Suture, an operation not less troublesome to the patient than the surgeon.

When these methods cannot be pursued, or are ineffectual for the reduction of the Intestine, the wound must be dilated sufficiently to admit of its restitution. But great care and caution is to be taken in performing this operation; for the Linea alba, the Arteries that run under the Musculi recti, the Vena umbilicalis, and the Intestines themselves must industriously be avoided. For the greater security, a Conductor, or sulcated Probe is generally introduced at one extremity of the wound, by which the common knife may be directed, or a knife alone, with a button at the point, of which *Heister* gives a figure, *Tab. v. F. 3.* and is of his own invention, and which he recommends as preferable to the Syringotomus, an instrument made use of in cutting for a Fistula in Ano, and mentioned by some surgeons as useful for this operation, of which see the description under the name.

But whilst the orifice is enlarging by any of these instruments, an assistant should keep the intestines out of the way of danger, first covering them with a stuph wrung out of a proper fomentation, or with the warm Omentum of some animal.

But if it happens, that the knife or Director cannot commodiously be introduced, by reason of the great inflation of the protruded Intestine, the surgeon must, with his left-hand, remove the Intestine out of the way, whilst, with his right, he cuts through the skin, fat, and muscles. Then wiping off the blood carefully with a sponge, he must endeavour to reduce the Intestine, without cutting the Peritonæum, which may sometimes be done, when the strangulation is in this manner lessened; but if it cannot, the Conductor, or knife, may now more readily be introduced, in order to enlarge the wound of the Peritonæum.

When the bulk and hardness of the excrement prevent the reduction of the Intestine, emollient fomentations or Cataplasms may be applied to it, and the Intestine may be drawn a little farther out; for by this artifice the excrement may be softened, and the thickness of it diminished by gentle pressure with the hand, so as to make the return of the gut feasible without dilating the wound.

Paré, *Severinus*, and some other surgeons, advise letting out the included wind, by making small punctures in the inflated gut with a needle, that it may be replaced without dilatation; but *Heister* prefers enlarging the wound, because many surgeons are of opinion, that these punctures are neither so innocent as they are represented, nor effectual for the purpose for which they are recommended.

When through a wound of the *Abdomen* the Intestines fall out, and are found to be perforated, the surgeons think themselves obliged to sew up the perforation before they are replaced; for by this means they expect that the wound will the more easily be agglutinated, and that it will prevent the chyle or excrement from getting into the belly, and affecting the sound parts. Now though wounds of the Intestines, and especially of the small ones, are extremely dangerous, and a cure seldom or never to be warranted; yet because the great Intestine may not only be sewed up, but sometimes also healed, as *Celsus* observed, *Surely doubtful hope*, according to this author, *is better than absolute despair*. A surgeon must therefore neglect nothing which is likely to contribute to the cure of a perforated Intestine.

Small perforations, scarce bigger than a quill, are by no means to be sewed up, but intrusted to the goodness of nature; for such commonly heal better of themselves, than when they are irritated with sewing, which, for the most part, is attended with pain, inflammation, and other ill consequences. It is by far the best way, therefore, with all due care, to replace the Intestines, and, after bleeding, to prevent an inflammation, seriously to recommend rest and abstinence to the patient.

Larger wounds of the Intestines, though hardly ever cured, were, till of late, and still are by some; sewn up with a Con-

tinued

tinued Suture, or Glover's stitch; for it seems better and more humane to cherish and support the precarious hopes of the patient, by an industrious care of him, than by neglect to abandon him to certain despair. In order then for the operation, get a pretty slender needle, and thread it with linen or filken thread, finer than ordinary. Then let the assistant, with a piece of fine linen, take hold of one part of the wound, and let the surgeon hold the other part in his left hand, and with his right sew up the gut with a Continued Suture, or such a stitch as glovers use, with the distance of a mathematical line, or a little more, between the stitches. Pass each extremity of the thread, both at the beginning and end of the Suture, under the stitch immediately next it, in order to fasten it, yet so as that the last shall be made into a knot, the first hanging out of the belly about a foot, that the thread may the more conveniently be pulled out after the intestine is conglutinated. Some prefer the Interrupted Suture much before this, because it requires fewer punctures, and is, for that reason, less subject to inflammation; the threads also left within, as being smaller, are less troublesome. Garengot shews another way of making the Glover's Suture; but whatever Suture is used, very few in such cases are saved, as experience shews.

The orifices of the perforated Intestines being thus sewn up, the surgeon must next think of closing, or, if need be, of sewing up the belly. Here I would repeat this monition, which can never be too often inculcated, *viz.* That in all wounds of the *Abdomen* the tent is to be kept in till the collection of preternatural humours, or at least the greatest part of them, is discharged; or till the thread that hangs out of the Suture, the Intestines being conglutinated, is pulled away.

The surgeon is also to take care, when two threads hang out of the belly, that is, one from the tent, the other from the Suture of the Intestines, that they be of different colours, lest perhaps when he designs to draw out the tent which is split in too far, he should take hold of the wrong thread, and so twitch and irritate the Intestine.

But since our modern surgeons have observed, that none, at least very few, recover of wounds in the Intestines; and that those very wounds, if the patient survive, because of the extraordinary thinness of the coats of the Intestines, do not so often conglutinate as grow to the wounded part of the belly, the inner membrane of the Peritonæum, the cawl, or some other Intestine; 'tis no wonder, that they have lately abstained from Sutures of the Intestines, especially the Continued, or Glover's Suture. And this the rather, because, for the most part, the frequent punctures bring on a grievous inflammation, most acute pains, convulsions, cancers, gangrenes, and death itself. In order, therefore, to treat their patients with a little more gentleness, they have established the following method of cure:

They pass a fine needle with a waxed thread through the middle of the wounded part of the Intestine, and after fastening it with a knot, bring the Intestine to the internal part of the wound, and there fix it with all imaginable accuracy, the wound being first closed by some of the methods above directed. The thread which hangs out they secure by glutinous plaisters laid upon the wound, so that the Intestine can neither slip back, nor any thing be discharged from it into the cavity. This being rightly managed, not only the perforated parts of the Intestines will grow to the inside of the belly, but the patients are cured in a milder and safer manner, than by a Continued or Interrupted Suture; provided also they take due care of their diet, and the bandage of the wound. I would prescribe the same method for conglutinating wounds of the stomach, provided we can come to handle them, because it has been practised with success.

If a part of the Intestines happens to be cut quite off, the wound will not admit of conglutination, and therefore nothing but despair attends the patient. No wonder then that such as have been wounded in this manner, whether they have had no assistance from the surgeon, or have had the wound sewed up, have, in former times, almost to a man miserably perished. But since Hildanus, Blegny, Dionis, Palsyn, Hoffman, Scacher, Vaterus, Cheselden, myself and several others, have observed that the orifice of the mutilated Intestine has, as it were, spontaneously united with and grown to the exterior wound of the belly, a benefit unexpected by the patient, what should hinder a surgeon from doing the best he can to imitate a method of cure pointed out by nature, his best guide, for the relief of the wounded? Whenever therefore a case of this nature offers, the surgeon ought to know, that he is not to leave the patient to his destiny; but that his business is still narrowly to inspect the superior part of the mutilated Intestines, and then by help of the Continued or Nodose Suture, or any other way, to join it with the orifice of the external wound; for by this means not only the wounded are oftentimes delivered from impending danger of death, but the wound of the Intestine itself is conglutinated in such a manner, that what before used to pass off by the Anus, is now intercepted, and comes out of this opening of the belly, as it were through another channel. And however irksom such a condition may seem, as requiring a

tin pot, or some linnen rags, always at the hole to receive the Fæces; yet it is far better to lose some of the comforts and conveniences of life, than to have no use of life at all. Besides, what passes off this way is not so offensive as what goes off by the Anus.

The afore-mentioned method will be of service when a part of the protruded Intestines is corrupted and mortified; for in such a case, the mesenteric arteries being first tied very tight, all the corrupt part of the Intestine is cut off, and the outermost sound part is conglutinated with the external wound of the belly; *for it is better, as Celsus says, to try a doubtful remedy than none*, and to save some, though never so few, than to abandon all to despair and death.

When the Intestines are wounded, yet do not fall out, and, consequently, the wound is quite hidden, the method in use amongst almost all surgeons, is to put a tent into the external wound of the belly, then to bleed, if the strength will bear it; after this they injoin fasting, rest, and lying on the belly; and for the rest, rely on divine providence, and the goodness of nature. But here a question arises, whether it be not adviseable, in such cases, to enlarge the wound of the belly, so as that the hurt Intestine might be found out, and then, by the help of Sutures, joined to the external wound? Indeed if we consider every thing attentively, it seems the best way to search out the wounded part of the Intestine, having before sufficiently dilated the wound in the belly for that purpose, and then, by the most proper method, to join the part to the wound, as before; otherwise the patient is left in the jaws of death, which few or none in this condition escape. Scacher, in his *Programma*, published at Leipzig, 1720, informs us, that the experiment has been tried with success. And Cheselden, in an Hernia, attended with a strangulation of the Intestine, opened the belly, drew up the Intestines out of the Scrotum, and afterwards perfectly cured the patient.

But what opinion are we to have of the use of clysters in wounds of the Intestines? For physicians have differed widely in their sentiments as to these remedies, some magnifying, and others as much vilifying them. For my part, (for I shall freely declare my thoughts) I am of opinion, that they are not wholly to be condemned, nor always to be commended. But if they must be allowed to take the best care of their patients, who take a method of cure most accommodated to the nature of the wound, I think the use of clysters in wounds of the great Intestines pernicious; but for those of the small ones, they may be very seasonable, and prove very beneficial. For as in the first case they cannot be discharged into the belly without damage to the wounded parts; so in the latter, that is, the case of the small Intestines wounded, they are usually administered with success; for they are not only restrained by the valve of the Colon from running into the *Abdomen*, but are of singular benefit and service, by cleansing the large Intestines of excrement, restoring an equable course of blood, assuaging, if not taking away, fevers and inflammations, and wonderfully mitigating pain itself.

IF THE OMENTUM FALLS OUT.

In wounds of the *Abdomen*, if the Omentum happens to fall out, either by itself, or with the Intestines, the surgeon is instantly to examine whether it is still warm and moist, and of its natural colour. If so, it ought to be put in gently with the fingers, if it can conveniently be done; but if, through the straitness of the wound, as it sometimes happens, this cannot be effected, all that is fallen out must be cut off close to the wound, and the wound must be healed like other wounds. So will the Omentum, without any damage or inconvenience to the patient, grow to the wound. But when the Intestines are fallen out together with it, the assistant is to hold it in a linen cloth, moistened with warm water or milk, till the Intestines are replaced in their proper situation, and then to put it carefully in.

But if, what may very easily happen, any part of the Omentum is cold, dry, black and mortified, or rotten, all that is any way corrupted must be carefully cut before it is replaced, lest the sound part should be infected within, and the patient killed thereby.

The corrupt part of the Omentum may be cut off with all the ease and conveniency imaginable, in manner following: Take a pretty strong needle and waxed thread, and run it through the sound part of the Omentum near the corrupt; then, winding the thread three or four times about, fasten it with a knot, that no blood may be discharged from the cut veins and arteries of the Omentum. This done, cut off the corrupt part with scissars or a penknife, and gently return the rest to its proper place upon the Intestines, leaving the thread to hang out of the belly about a foot, till the Omentum healing up, it comes away.

As to the rest of the management, that is, detarging, bandage, and conglutinating, the same rules are to be observed as before prescribed: but a larger tent is to be introduced into the lower part of the wound, in order to preserve an opening for the

the discharge of any Sordes that may be contained in the *Abdomen*. But that the thread which hangs to this tent may not be confounded with those that hang from the Omentum, they are to be each of a different colour.

After six or seven days, those threads which hang out of the wound of the Belly are to be drawn gently every dressing, till at length the Omentum healing up, we find they may be taken out, but without violence. This being effected in the most gentle manner, and the place ceasing to run, the tent must be removed, and the external wound duly dressed and healed; but at the very first some blood is to be taken from the patient, except he hath lost enough before by the wound, to prevent inflammation; and rest and abstinence must be enjoined him.

But what can we think of that strange advice of Dionis, in which he would fain persuade us never to cut off any part of the prolapsed Omentum, but rather follow the example of Marechal, chief surgeon to the king, who, as Dionis says, oftentimes replaced the Omentum, without cutting or tying, or any bad consequences from omitting them. Now to speak my mind freely, this tale of Dionis seems to me to be dressed up in so careless a manner, that I dare pronounce it deficient in point of justness and accuracy. For it does not appear by his relation, whether the Omenta were great or small, sound or rotten, which he says Marechal replaced without amputation. If they were sound, he needed not to have been so solicitous to have us imitate Marechal's example; for no surgeon ever denied or doubted that it was proper to replace a sound Omentum. But if the Omenta which Marechal thus restored without amputation were corrupt and mortified, which Dionis does not tell us, it must be a wonder indeed that no mischief happened to the patient, especially if a considerable part were rotten; and wonderful it is what became of the corrupt Omenta in the belly, and by what ways they were purged out. Therefore I think that this advice of Dionis is by no means to be regarded, before we receive some plain and certain information concerning this matter; and this the rather, because Palsynus in his *Chirurgia* inserts a case, in which Marechal himself tied and cut off a corrupt part of the Omentum, before he replaced the sound part upon the Intestines, which, he also says was the practice of other noted surgeons at Paris.

Garengot embraces this opinion of Dionis, though he does not name him; but he does not clearly inform us how great a part of the corrupt Omentum it was, which Marechal, or any other thus returned without damage. Indeed I am persuaded, that it is not impossible for a very small corrupt part of the Omentum to be digested in the belly, but a large one by no means, unless it can be proved by various and undeniable instances. For one observation, even supposing it true, will not put the matter out of doubt, much less afford an example to be imitated; because miracles are now and then observed in the most dangerous wounds; and because any other corrupt matter or impurities of this kind cannot be kept, even in external wounds, without often creating very bad symptoms. But what may we not dread from them, when shut up among the internal parts, nay willfully thrust into them? Nor is it the same thing, as this author supposeth, whether the suppuration be small or great, as long as there is a suppuration. But because a great corrupt piece must cause a great suppuration in the Belly, whereas in the tied Omentum, where all the corrupt part is cut away before the sound is returned, there must be a very small, at least a far less suppuration; therefore less mischief is to be feared from this than from the former; especially since we endeavour to discharge even that small matter produced by that suppuration through the external wound, kept open by the use of tents. But Garengot soon after advises to close up every opening, by throwing aside all tents whatever, contrary to Marechal himself, who used them with success. Hence, so much the less can a great part of the Omentum resolved into Pus be discharged out of the Belly. I think therefore we ought carefully to distinguish between a great and small suppuration, for there is more difference between them than Garengot imagines; and since this matter, in my opinion, is not sufficiently cleared up, but still subject to great doubts, and even Lazzard, Palsynus an eye-witness, affirming the contrary; and Garengot does not seem to have learned by his own experience, the happy success of replacing a great corrupt part of the Omentum, I think it a better and safer way, to tie and cut it off, especially if the unsound part be large, as the best surgeons have hitherto done, than to lodge it in the Belly to the imminent danger of the patient's life. *Heister.*

Roland, Laufranc, Gulielmus de Saliceto, and Rogerius, advise, in case an Intestine is wounded, to defer the Suture of the external wound, till the Intestine is healed.

Paré is of opinion, that all wounds of the Intestines are not mortal, of which we find many instances related by Hildanus, Cæsar Magatus, Plazzonius de *Scelopetorum vulneribus*, Petrus de Marchettis, Fallopius, Arcæus, Cabroleus, Tulpus, and Schenkus.

As Mr. Sharp is the last and best of our own country writers in surgery since Wiseman, I shall give his opinion of Gastroraphy, and wounds of the Intestines.

The account of this operation has employed the ingenuity of many chirurgical writers, and occasioned much debate about the proper rules for performing it; and yet what makes the greatest part of the description can hardly ever happen in practice, and the rest but very seldom. Mr. Sharp has been told, that Du Verney, who was the most eminent surgeon in the French army, a great many years during the wars, and fashion of duelling, declared, he never had once an opportunity of practising the Gastroraphy, as that operation is generally described; for though the word in strictness of etymology signifies no more than sewing up any wound of the Belly, yet in the common acceptation it implies, that the wound of the Belly is complicated with another of the Intestine. Now the symptoms laid down for distinguishing when the Intestine is wounded, do not with any certainty determine it to be wounded only in one place, which want of information makes it absurd to open the *Abdomen* in order to come at it; if so, the operation of stitching the bowels can only take place, where they fall out of the *Abdomen*, and we can see where the wound is, or how many wounds there are: if it happens that the Intestines fall out unwounded, the business of the surgeon is to return them immediately without waiting for spirituous or emollient fomentations; and in case they puff up so as to prevent their reduction by the same orifice, it may with a knife, or probe-scissors, be dilated sufficiently for that purpose, or the Intestines may be pricked to let out the wind, laying it down for a rule in this, and all operations where the Omentum protrudes, to cut off so much as shall be mortified before it is replaced.

Upon the supposition of the Intestine being wounded in such a manner as to require the operation, for in small punctures it is not necessary, the method of doing it may be this: taking a straight needle with a small thread, lay hold of the Bowel with the left hand, and sew up the wound by the Glover's stitch, that is, by passing the needle through the lips of the wound, from within outwards all the way, so as to leave a length of thread at both ends, to hang out of the incision of the *Abdomen*; then carefully making the Interrupted Suture of the external wound, pull the Bowel by the small threads into contact with the Peritonæum, for the more readily uniting afterwards by adhesion with it; though it would be more secure to pass the threads with the straight needle through the lower edges of the wound of the *Abdomen*, which would more certainly hold the Intestine in that situation. In about six days it is said the ligature of the Intestine will be loose enough to draw away, which must be done without great force. Mean time the wound is to be treated with superficial dressings, and the patient to be kept very still and low. *Sharp.*

The following case preserved in a letter to Hildanus from Claudius Deodatus, physician to the bishop of Basil, is very remarkable, and worth perusing, which I have therefore inserted.

About a year ago, a young man upwards of twenty, by trade a woollen weaver, having drank plentifully of wine, took a walk out in the dead of the night with his companions, to cool themselves. Rambling about the town, which is called Bruntrut, they met with some young students as drunk as themselves, and a quarrel arising, they drew on both sides; in the scuffle, one of the scholars, with a sword (which they call a *stiletto*) stabbed the weaver a little above the Navel, towards the left, so that the weapon came out at his Back, downwards toward his Loins. The weaver fell, and was carried off half dead to the surgeon, while the scholar doubting he had killed the man, secretly conveyed himself out of the town. The wounded person was put into the hands of two able surgeons, who were John Glanz belonging to the court, and Werner Cramory of Bruntrut, whom the poor man earnestly intreated to save his life, every one expecting he would soon give up the ghost. They were prevailed upon jointly to undertake him, though they gave but very little hopes of a cure. They examine with all possible care, the size, the depth, the place, and other circumstances of the wound, and conjecture, that if the Stomach itself should happen to be untouched, at least its orifice, or the extremity of the small Intestines, must have been penetrated and opened, though both orifices of the wound were so strait, that its innermost parts were with difficulty searched by one of the smallest probes. After they had well considered the difficulty and hazard of the undertaking, they betook themselves to the application of all such remedies, both inward and outward, as long use and daily practice had taught them, such as oils, balsams, ointments, plaisters, not omitting vulnerary potions and apozems. In a little time, as it usually happens, came on various and perplexing symptoms, as a fever attended with shiverings, thirst, watchings, restlessness, faintings, and costiveness: I advised the use of emollient clysters now and then, in order to discharge any clotted blood that might chance to stick in the Stomach or Intestines, and by its putrefaction, inflame the fever, or heighten the symptoms. This was thrice put in practice, and

and every time there came off abundance of caked, black, and putrid blood; a certain sign that the Intestines were wounded. At length, after some weeks, both orifices of the wound were cicatrised; the patient thought himself cured, and went home. But he still felt a pricking pain about the part affected, which was accompanied with a hard swelling, so that he was forced to go with his body very much bent. Quite tired out with this pain and swelling, he consulted another surgeon, who suspecting something, I know not what, of Pus to be in the fault, applied things to soften the tumour, and promote the ripening of the Pus, and afterwards opened it twice with a lancet; but his pains were to no purpose, for there came out nothing but a little serous matter, and the pain still continued.

Now because he was of a cachectical habit of body, and had been for a long time troubled with obstructions of the Liver, Spleen, and the Meseraic veins themselves, I advised such remedies as were proper for removing obstructions of the Viscera. These were also tried upon him in vain, and the whole business resigned over to nature, the rather because the man could make a shift to walk, and do his business in some measure.

Towards the end of the year, returning home one day, after he had dispatched his business, he was taken in the midst of his walk with a violent motion to ease himself, and with vast pain and torment voided the tip, or very point of the weapon that wounded him. The surgeons struck with the novelty of the thing (though the patient would not confess it, till awed by the command and authority of the magistrate) left no stone unturned to get it into their possession, in order to shew it publicly, and compare it with the weapon to which it belonged. They were satisfied that it was the tip of a sword's point, but wanted the sword to which it belonged.

That there was a piece of the truncated sword left in the patient's body, is evident from the lasting and continual pricking pain, which still remains fixed, though the cause is removed. And it is abundantly evident from the premises, that the wound was mortal, because either the Stomach or Intestines were hurt, and the tip of the sword deeply rusted lay a whole year hid in the winding labyrinths of the Intestines in defiance of all stimulating expellers; for whatever makes its way downwards, must pass through all the orbs of the Intestines. Now whether the sword were broken by the man's falling to the ground, and afterwards in drawing it out, the point that is come away, or even the part wanting, might not stick in the Stomach or Intestines? And by what means the patient yet survives after his Stomach or Intestines were penetrated? And how, or where the iron could lie without doing more prejudice? And whether the other part of the weapon, as we suspect, be left in the body? These, and many other such doubts, which might be raised, are left to your well-known judgment, and long experience for a solution.

HILDANUS'S Answer.

That the wound you write of was mortal, no man of sound judgment can doubt; both Hippocrates and experience itself attesting that wounds of the Intestines are so. Besides, it was very near the Medulla spinalis, and the Nerves proceeding from it, and therefore more liable to pains, inflammations, and other grievous symptoms.

But that the Stomach was not pierced, much less the Pylorus, as your surgeons thought, appears from the situation of the wound. For the Pylorus, or right orifice of the Stomach, is seated on the right side, over-against the Liver, and the Stomach lies too high for the wound to reach it, and I doubt whether the small Intestines were hurt; for being bloodless, they seldom or never close. Wherefore Hippocrates, Book vi. Aph. 18. with good reason pronounces them mortal. However, we meet with instances in Marcellus Donatus, and others, of wounds of the small Intestines, which have been cured. Therefore it seems most probable to me, with submission to your better judgment, that the stiletto went through the Intestine called the Colon, and through that part of it where it is very firmly connected to the left Kidney, and hit with its point against the Processus of the second or third Vertebrae of the Loins, which are of a firm substance, when the wounded person falling to the ground, and rowling, the weapon being of the best steel snapped and broke off, the point remaining in the Intestine, or part there, and part in the Muscles.

That the Colon was wounded the want of stools is a good argument. For that Intestine, as you know, being pretty strait, where it runs by the left Kidney, the passage of the excrements in that place might easily be intercepted by the affluence of the humours, and inflammation and tumefaction of the part caused thereby. That plenty also of clotted blood, which the patient voided, indicates a wound in the Colon. You acted therefore with good sense, in prescribing clysters, to which, I doubt not, the man, in a great measure, owes his preservation.

From what has been said, you will see, venerable and worthy Sir, in answer to your queries, that the weapon was

broken by the patient's falling to the ground, and that the point remained in his body. But if any one should maintain that it stuck in the Process of the Vertebrae above-mentioned, in my opinion he is not far wide of the truth.

You ask besides, by what means the patient could survive a wound in the Stomach or Intestines? I answer with Averrhoes, that very often wonders are wrought in diseases, that is, such things as surpass human understanding; and that wounds of the Stomach have been sometimes cured, not to mention Nicholas Nichols, and Matthias a Cornace, we have the testimony of Marcellus Donatus, in his 5th book, chap. iv. See a remarkable example in Crollius, in his preface.

Some years since, Galenus Wierus, a physician of great repute, in a letter he wrote me, has these words: "I remember, says he, that at Montpellier my master Laurentius Goubertus, a very famous physician, and Regius professor, shewed us a blunt knife, which a shepherd wrapped in a cloth, and forcibly thrust into his fellow's mouth, and crammed it down his throat. The same lay a long while, as I remember, two years, in the body, till at length it came out at an Abscess in the Groin, which was cured by the surgeon, and the man lived seven years afterwards." So far Wierus.

Moreover, that wounds in that part of the Intestine, where your patient was hurt, are not quite desperate, I myself am an eye-witness. You have an example in my *Observ.* xiv. cent. 1. and indeed the Intestine in that part is thick, fleshy, and next to the fleshy parts, and even connected to them; so that when the rest of the Intestines are almost perpetually thrust this way and that way by the excrements and flatulencies, this part only of the Colon remains in a manner immovable, and therefore easily closes.

You ask, in the third place, how iron could lie so long in the body without doing prejudice? It was not altogether without prejudice; for you write that the patient was afflicted with constant pains. Besides, provident nature, which is always at work to relieve us, takes care to sheath those foreign and unwelcome guests which harbour within us with a callous sort of matter, in order to defend the adjacent parts from the injury which they might do them. You have an example in my *Observ.* lxii. cent. 1. of a knife fixed in the Loins; and another, *Observ.* ii. cent. 2. of a leaden bullet that lay six months in the Brain, without any supervening symptom.

Your fourth query is, whether the other part of the sword, which is wanting, do somewhere or other lie hid in the body? That, indeed, is a difficult matter to determine; but the constant and fixed pain is enough to convince us, that something preternatural, whether it is that part of the sword, or a fragment of the Appendix of the Vertebrae, lies hid in the part affected. For it seems to me very likely that the point of the sword struck against the Appendix, or Ala vertebrae, since I do not see how it could be broken in the flesh.

In this history, and the observations upon it, both Deodatus and Hildanus call the wound mortal, though the man recovered. This expression must not be taken literally. I suppose they mean that such a wound would generally be mortal.

The Muscles of the *Abdomen* are subject to inflammations, which are attended with some singularities, and require a peculiar treatment.

Physicians have sometimes mistaken an inflammation of the Muscles of the *Abdomen* for an inflammation of the Liver; but Galen tells us that inflammatory tumours of these Muscles preserve the figure of the Muscle, which that of the Liver does not. Besides that an inflammation of the Liver is attended with worse symptoms.

Heurnius gives a history of a woman, whose Muscles of the *Abdomen* were almost as hard as a stone, but preserved the form of Muscles. He applied Emplastr. e Mucilag. and when the parts grew red, and yielded to pressure, he ordered them to be laid open, upon which there was a great discharge of Pus, and the woman recovered.

He says these Muscles have a very thick Membrane, which will not permit the Pus to break out, without laying open. He adds, that he has seen these tumours, when not laid open, turn to a stony hardness; and also the whole Mesentery.

He says also that he has seen an Abscess of these Muscles turn into such a hardness, which has in like manner affected the parts underneath.

In order to prevent these consequences, and also hinder the Abscess from burbling internally, and discharging a quantity of matter into the cavity of the *Abdomen*, Hildanus advises to lay open by incision a Phlegmon of the *abdominal* Muscles when tending to suppuration, or suppurated, sooner than other Abscesses.

Because an inflammation of the Muscles of the *Abdomen* much resembles an inflammation of the Liver, they are to be distinguished by proper signs, such as follow:

In an inflammation of the Muscles of the *Abdomen*, the skin about them is so tense and stretched, that you cannot pinch it

up with your fingers. Tumours of the *Musculi recti* are of an oblong figure, and extending themselves over all the Belly, inclose the Navel. And so inflammations of other Muscles, in some measure, also represent their figure.

On the contrary, an inflammation of the Liver conforms itself, both in figure and measure, to the part affected; the Muscles also, when handled, seem to give way to the touch, and the tumour appears deeper seated. Besides, the colour of the whole Body is very much to be regarded in distinguishing these affections. For in an inflammation of the Muscles the colour continues lively, and much as in a state of health; but in an inflammation of the Liver it appears pale and yellowish, inclining to a Jaundice. You have a remarkable example to this purpose in *Gal. v. de Locis affect. c. 7.* of one Stefanus, who was judged by the physicians to have an Abscess in his Liver; but Galen being sent for, and only viewing his countenance, immediately pronounced that there was no Abscess in the Liver, and afterwards searching the Belly, found that it lay in the Muscles of the *Abdomen*.

What determined his judgment was, that the colour of the patient's face was not altered in the manner usual in an inflammation, or Abscess of the Liver.

A like example you have in *Valeriola, Observ. lib. iv. cap. 5.* of a woman, who was judged by another physician to have an inflammatory tumour in her Liver. "But I, says he, as soon as the sick employed me, was of opinion that the tumour did not lie in the liver, but in the muscles placed over it." And a little after he says, "As soon as I came I felt the place, and discovered in the right Hypochondrium an oblong tumour, which reached to the navel, and soon after grew hard enough to be sensibly felt. The colour of the face was ruddy, fresh and rosy, with a mixture of white, and so continued during the whole course of the distemper. The urine, as to colour, consistence, and contents, of the most healthy sort; from all which signs I found that it was not the Liver, but the Muscles of the *Abdomen*, that lie over it, that were affected. For where the Liver is diseased, the colour of the face must necessarily be altered." Galen himself, *lib. v. cap. 7. de Locis affectis*, writes, that he discovered many disorders of the Liver by the colour of the face, which usually inclines to a pale yellow, mixed with a dusky green. *Riverius*.

In the year 1588, a gentlewoman of Lausanne complained of a very great and pungent pain in the Stomach. I was sent for, and examining the place, felt a hardness between the Muscles of the *Abdomen*, just opposite to the Stomach, by the side of the *Linea alba*, towards the Liver, which however could not be perceived without handling; for no outward sign appeared. The patient had a continual fever, with a great, pungent, and throbbing pain; whence I easily inferred, though no disorder appeared in the skin, that there must be an Abscess between the Peritonæum and the Muscles of the *Abdomen*. Being thoroughly sensible that the case was dangerous, and that nothing but an untimely death could be expected, if the Muscles of the *Abdomen* were not lanced, I advised to consult the most famous and learned Dr. John Aubert of Vindon, the most celebrated physician at that time in Lausanne. He was sent for, and clearly agreed with me in opinion that there was an inflammation, which, if not seasonably opened, would bring on death, or some tedious and stubborn distemper. But when we had declared our opinion to the attendants, they were amazed, because no tumour or disorder appeared on the skin, and they could not believe any thing of an internal Abscess; wherefore they utterly and unanimously rejected our advice of opening and cutting the Muscles, but begged of us to try if by any means, as Anodynes externally applied, the pain might be mitigated, and by proper medicines taken inwardly, the fever, nausea, and eruptions might be removed. We, having first forewarned them of the danger, did what in us lay, and carefully provided all things according to their desire. After some days, about midnight, the pain remitted on a sudden, and the patient fancied herself quite well. Soon after, when we went to visit her, at seven o'clock in the morning, and had scarce entered the doors, the husband met us with joyful looks, to assure us that his wife was quite easy, which we presently found to be true in fact. The pain was scarce sensible, and the tension, eructation and nausea were quite gone, the hardness in the *Abdomen* could scarce be felt, the fever, in some degree, remitted, with the Pulse much mended. From these signs it was easy for us to conclude that the Abscess had broke inwardly, and discharged its contents into the vacuities of the *Abdomen*, and also to foretel the husband the event of the disease. After a few days, the pain arose anew in the Lower belly, followed by a burning and continual fever, that ended in cold sweats and faintings, under which the patient piously and placidly departed out of this life. I have been the longer in this instance, that young students may know how to judge and prognosticate in like cases. *Hildanus*.

A man 33 years old was much bruised by a very heavy coach-wheel, that passed over his right Hypochondrium, but with-

out breaking his Ribs. The hurt produced a looseness and great pain, which hindered him from sleeping, and by neglecting the proper methods of cure he fell into a fever, lost his strength, and died. I suspected, upon considering the situation of the parts, that the Liver was impaired; but upon laying open the Hypochondrium, found it remarkably soft and yielding; from whence it was obvious, that the Liver was not originally injured, indurated, or inflamed.

Having made an incision in the form of a cross through the Muscles of the *Abdomen*, I observed a pint and a half of Pus to run out of the right side, without any apparent Abscess in the Liver, the Aposteme being between the Peritonæum and the Muscles of the *Abdomen*.

Part of the Omentum adhered so strongly to the Abscess, that I was obliged to separate them with a knife.

The Liver was found out of its natural place, under the middle of the Diaphragm, inclining to the left Hypochondrium, and adhering every where to the Bastard ribs of the Sternum by Membranes, which I broke with my fingers.

The Abscess was large enough to contain the head of a bulky man, the Liver being displaced by the force of its compression.

The Stomach which was large, was forced by the same imposthumation towards the right side. *Bonnet. Sepulch. Anat.*

A woman of quality about twenty years old, having been troubled for some months with a general weariness, heaviness and fatigues, for which she had taken mild purges, and strengthening physick, such as chalybeates joined with gentle purgatives, preparations of tartar, volatile salts, &c. finding her illness not abated according to her hopes, committed herself to the care of an ignorant empirick, who gave her pills made of the dried seeds of the Indian spurge, and other medicines of the same kind, which purged her strongly, and produced a sudden flow of spirits, and appearance of health. But the humours agitated by the violent operation of those medicines, produced a tumour in the Lower region of the Belly, which, notwithstanding the means that were made use of to disperse it, not only increased in one year to an enormous size, but caused very excruciating pains, and brought an acute fever upon her. To remove these symptoms many remedies were tried, with so good effect, that the fever was taken off, the tension of the parts was relaxed, and the inflammation ceased, only the tumour still continued, but without pain. This we endeavoured to dissipate by proper medicines, such as mineral waters, and artificial preparations, both of vegetables and minerals; but to so little purpose, that the swelling increased, and all the Belly was bloated to a prodigious bulk, and the fever nine months after it had been removed, returned with so much violence, that she was confined to her bed. Then the swelling extended itself from her Belly to her Thighs and Legs, and excoriated the parts in many places. Being now no longer able to move herself, and feeling a kind of laceration in the vessels of the Lower belly, she intreated me to open the tumour; and in compliance with her desire, I thrust a pointed Cannula into the cavity, and in ten days let out thirty pints of Pus corrupted to the highest degree. By this evacuation she was greatly relieved, but nevertheless died on the thirteenth day after the puncture, with great piety and calmness. When the *Abdomen* was laid open, we found at least forty pints of fetid and viscid Pus still remaining, in which the Intestines had floated so long, that their outward membrane began to mortify. The right Testicle, or Ovary, was by the pressure of the tumour, which I shall next describe, become so flaccid, that it was not without difficulty discoverable. What most deserved our regard was a tumour in the Mesocolon, which beginning on one side of the Colon where it enters the Rectum from a basis of about three inches diameter, passed under the Intestines to the right side, where it produced a body of no less than a foot diameter; then turning upward, it united itself to the Peritonæum, and continuing, extended itself to the left side, towards the part where it took its rise, and rested upon the larger Intestines, which were almost encircled by it, while the smaller were, together with the Stomach, forced upwards, and more at liberty. This tumour was glandulous and membranaceous, and contained, through its whole course, wells or cavities of various forms and sizes; many of them had a communication with each other, and were filled with substances of different kinds, as watry, mucilaginous, greasy, or almost of the consistence of tallow, all intolerably fetid. The tumour, with its contents, weighed about thirty pounds. All the other parts were sound. *Bonnet. Sepulch. Anat.*

A maiden of unblemished character was, in the year 1691, afflicted with an offensive and scabby eruption, which discharged a great deal of Sanies, and spread over her whole body, and in opposition to all the methods that were used, continued to the year 1696, and was believed by many to be the true Elephantiasis, because when the scabs fell off, the skin appeared livid and callous. At the beginning of the year 1696, the eruption

eruption, either by the help of medicine, or of its own accord, intirely disappeared; but was soon succeeded by pains over the whole body, and those were accompanied by a contraction of the Muscles which bend the Leg. At the same time her appetite, which had always continued good, increased to a prodigious degree of voracity. Her whole Body, and particularly her *Abdomen*, were so swelled, that she seemed to have at once an Ascites and Anasarca. In May, 1696, she died in her thirty-fifth year.

On the next day we opened her body, and observed there appeared no remains of the Scabies in any part of her body, that her countenance was livid and moist, and that a large quantity of purulent matter issued from her Nostrils and Eyes. That the tumour of the *Abdomen* was produced by a kind of anomalous or unnatural fat, which had extended the cells of the Panniculus adiposus to such a degree, that it was in some places three inches thick; but was crowded in vast quantities between the Membranes of the Mesentery, and in the Omentum itself. The Mesentery was transformed by it into a confused mass, in which neither Vessels nor Glands could any longer be distinguished. But our attention was more strongly attracted by the Omentum, of which the Vessels called Vasa adiposa by Malpighius, seemed to be extended by a general Hernia, or Rupture, and being filled in all its divisions to its utmost capacity, formed a multitude of cavities, or bags, of about an inch in compass, which hung down from the parent vessels of the length of three or four inches. The substance with which the cells of the Omentum and the cavities arising from them were filled, was like oil of olives congealed in the winter, and dissolved so readily by the warmth of the hand, that it gave us some reason to conclude with Malpighius, that it had some degree of circulation, and communication with the neighbouring vessels of the Mesentery and Panniculus adiposus. The other parts were without disorder. *Bonet. Sepulchret.*

I shall add to this account of the diseases peculiar to the *Abdomen* a remarkable case, which happened to fall under my own inspection.

In the year 1728, I attended a boy of about fifteen, who had been ill a great while, but, for six weeks before I saw him, he complained of a pain on the right side of his Belly, like that which attends an inflammation of the Intestines, except that it was not so acute, and had continued much longer than any common inflammation could do. In my first visit I was desired to observe one very extraordinary symptom, which was, that he was perfectly easy when he put himself in that situation which people usually call standing on their heads; and this he frequently was tempted to do for relief. The boy was wasted very much at this time, and died about fourteen days after.

Being permitted to open the Body, as soon as it was laid on the table, I perceived the whole *Abdomen* was considerably swelled, though not so much as is usual in a Dropsy.

As soon as the integuments and *abdominal* muscles were removed, I perceived the Peritonæum discoloured, and upon making a small perforation in it, a Flatus was discharged with some violence, which was attended with a stench almost insupportable. When the Peritonæum was removed, I found some Faeces in the *Abdomen*, and soon discovered a large perforation in the Cæcum, not far from the Appendicula vermiformis; but was surprised at the extraordinary figure of this part, which seemed to be very much enlarged, and formed into a kind of bag not unlike the Stomach. The hole in the Intestine was about as large as a six-pence, and a hard substance lay just upon it, of the size of a tennis-ball. I opened the Intestine, and took out the hard body, which much resembled an oak-ball. Upon cutting through it, I found it had been formed of the grosser part of the excrement, which had concreted round a plumb-stone, which lay in the middle. I took eight more of the same sort, but not quite so big, out of the Colon, and a great number of lesser, both out of the Colon, and small Intestines, each of which had for its basis a plumb or cherry-stone. And I was then told, he had discharged above fourscore small ones before his death, at different times, by stool.

These appearances account for the ease he found by standing on his head, for in that posture the ball would fall from the bottom of the enlarged Cæcum, and no longer press on the painful part, as it must do when he was erect.

Such cases as these sometimes occur, though they have not been much taken notice of. Bonetus mentions one somewhat like it. *Sepulchret. Anatom. l. 3. sect. 17. obs. 27.*

The *Abdomen* is subject to many other disorders, which will be specified under their particular names, or under the anatomical account of the particular parts affected by them.

But I must not omit taking notice, that the Muscles of the *Abdomen* are subject to a Rheumatism, which is sometimes mistaken for the Colic, and sometimes for an inflammation of some of the Viscera, which are situated underneath, especially of the Mesen-

tery, from which it is not very easy to be distinguished. However, it may be discovered by the absence of those symptoms which always attend inflammations of the particular Viscera, by the inefficacy of those medicines which usually relieve the Colic; by an accurate enquiry into the particular species of pain which the patient feels, and by an increase of it during any considerable action of the Muscles, whether in expiration, inspiration, or straining.

If there is reason from these considerations to suspect a Rheumatism, it will be a farther confirmation of it, if the patient has been subject to rheumatic pains in the other parts.

As young anatomists meet with some difficulty in beginning the dissection of a body, the following directions may afford them the instructions they stand in need of, and facilitate their way to a knowledge of the parts of the *Abdomen* in particular.

In the regular administration of a human body we must begin our section with the Lower belly, lest the speedy putrefaction of its Viscera should become troublesome and offensive. For this purpose, incision must be made through the common integuments of the body, in a crucial form; the first and direct line of division beginning at the Cartilago ensiformis, must be continued to the Os pubis; the other transverse from the Navel on each side, to the region of the Loins; after which, the Skin, Fat, and Membranes, of each portion being raised from their respective angles, the Muscles which cover the *Abdomen* will appear in their proper situation. These may be comprehended under the general title of Epigastrick, whereof some are anterior, seated in the fore part only; some lateral, others posterior, best referred to the back and loins.

OBLIQUUS DESCENDENS SEU DECLIVIS.

This Muscle derives its name from the progress of its Fibres. It arises with several acute productions, partly fleshy, and partly tendinous, from the lower margin of the fifth, sixth, seventh, and eighth, Ribs, where its several separate originations lie between the indentations of the Serratus major anticus. These for better distinction we choose to call its former origin; besides which it continues to derive more heads in like manner from the ninth, tenth, and eleventh, and sometimes from the extremity of the last Bastard rib, where it is also indented with the Serratus inferior posticus, as Vesalius has well observed. From its former origin, its oblique descending fleshy part expands itself into a broad membranous Tendon, before it marches over the Rectus to its insertion in the Linea alba and Os pubis. From its latter in the same manner descending, its ends partly tendinous in the Ligamentum pubis, but chiefly fleshy on the superior and fore-part of the circular edge of the Os ilium. It adheres not to the transverse Processes of the Vertebrae lumbares, as Spigelius, Veslingius, and with them most anatomists have imagined. But its largest, last and most fleshy digitation, leaving the lowest Bastard rib at its extrem point, and in its oblique descent declining forwards, still recedes gradually more and more from the Vertebrae, forming a triangular Interstice, comprehended by the Sacrolumbus, Os ilium, and its lower side; in which Area the Fibres of the subjacent Muscle plainly appear.

Besides the actions vulgarly ascribed to this Muscle, and its partner, together with the rest of their fellows, viz. compressing the Intestines and Bladder, either in excluding the Faeces and urine in both sexes, or Foetus in women; they have still a farther and more noble use.

That part of either of them that is interjacent between their latter origin and spine of the Os ilium, bearing an analogy in its position to the Mastoideus of the head, serves for the circumrotation of the trunk upon the axis of the Vertebrae, when we convert the body to the contrary side, the feet remaining unmoved, for which necessary motion authors have assigned no instrument, though this, I think, did not escape Dr. Glisson's judicious reflection.

For the better dissection of these *abdominal* muscles, observe the following method. The body being supported on its side, the Dorsi latissimus of the contrary must be freed from its divers fleshy originations at the curvated parts of the Ribs, as also the tendinous part of it, which arises from the edge of the Os ilium. This done, the blood being dried, and the fat cleared, which caution, to prevent confusion, must perpetually be observed, the originations of the described Obliquus descendens will appear.

Begin its separation by introducing your fore-finger between it and the following Muscle in the above-noted Interstice, then raise that part of it which springs from the lowest Rib, and terminates in the spine of the Os ilium, proceeding to free the rest of its digitations from between the four above-named Serrati, being cautious not to wound its Tendon, in dividing it from its subjacent Muscle, especially as it marches over the Rectus; nor may their separation be attempted in every subject by reason of their strict adhesion; wherefore, in preparing these Muscles, when they are to be demonstrated after dissection, you may proceed in the following order.

The Obliquus descendens being raised on either side (as before) to the Rectus, cut through and raise both Tendons together,

ther, leaving them at their insertions in the Linea alba, taking sufficient care in their separation from the intersections of the Rectus. This done, on the contrary side raise its fleshy part only, beginning in the Linea semilunaris, by making an aperture in its Tendon towards its lower part, where it is separable from that of the following Muscle, and thrusting a probe between the two Tendons, divide this superior one through the length of the Abdomen. Then the fleshy part on this side being also raised, and cleared to the extremities of its digitations, and left there, raise the Oblique Ascendent; and on the same side you raised the former towards its origination, raise this *e contrario*, so pursuing it to the Linea alba, where it is to be left: On the contrary side, its fleshy portion must be raised to its origination. The rest of these Muscles appearing *in situ* require no dissection.

OBLIQUUS ASCENDENS SEU ACCLIVIS;

So called from the oblique ascent of its Fibres. The same error noted in the preceding description is here committed by vulgar anatomists, neither of these Muscles having any communication with the Lumbal Vertebrae. It arises fleshy from the whole circular edge of the Os ilium and Ligamentum pubis, without any thin Membrane springing either from the Loins, or Os sacrum, as Vesalius would persuade us, or from the Apices of their transverse Processes, as others pretend; thence mounting with an order of Fibres inclining forwards, forms a broad membranous thin Tendon, implanted into the whole length of the Linea alba, and the Cartilages of the eighth, ninth, tenth, eleventh, and twelfth Ribs.

Besides its known use in compressing the Abdomen and its contents, that part of it which arises fleshy towards the back-part of the edge of the Os ilium, by the oblique ascent of its Fibres to the Cartilaginous endings of the Ribs, not only depresses them, and freights the cavity of the Thorax in expiration, but, in regard the order of Fibres of this intersect those of the former Muscle on the same side, may antagonise it in the circumrotation of the Trunk of the Body on the Axis of the Vertebrae; as on its contrary side, its series of fleshy Fibres being parallel to those of the said Descendens, on the opposite side, may act in concurrence with it in discharge of its office. In the structure and reciprocal co-operation of these Muscles, the Ascending on the right, and the Descending of the left, turning the Body to the right; and *vice versa*, the Ascending in the left, and Descending in the right, in like manner turning it to the left, the art of nature indeed is very admirable.

PYRAMIDALIS VEL SUCCENTURIATUS.

This Muscle lying on the Rectus, presents itself next in order of Dissection. It has its name from its figure, aptly representing a pyramid, from a broad basis ending in a point. It arises from the superior part of the Os pubis, and in its ascent lessens itself gradually till it becomes a long Tendon inserted in the Navel: Riolan has observed the left to be most commonly the lesser; and if either be absent, it most usually is that. Fallopius (who first discovered these Muscles) conjectures they compress the Bladder of urine; Fabritius ab Aquapendente imagines they support the Abdomen, and hinder the superior parts from pressing too violently on the inferior; but this opinion seems to take its rise from observing the anatomical subject in a supine position. The use which we think most genuine and natural is this: When the Diaphragm has pressed the Viscera, whereby the Abdomen is become tumid, these pull the navel downwards, by which means they make a more adequate compression of the Bladder in the expulsion of urine, than any other Muscle of this part; though it must be confessed they all contribute their assistance in that action. They are called Succenturiati by their author, or Auxiliary muscles, from a supposition, that they are only supplemental to the following in their action, the order of Fibres in both agreeing, and these being always absent, when those are continued fleshy to the juncture of the Ossa pubis.

RECTUS.

So called from the rectitude of its position. Anatomists differ in assigning the origination of this Muscle, some deriving it from the Sternum, others from the Os pubis; but it seems a matter more of controversy than use, since either part is indifferently moved by it, the opposite remaining stable. Little can be added to the common and well-known description of these Muscles, they being continued according to the length of the Lower belly, from the Cartilago ensiformis, and two of the Cartilages of the true, and two of the false ribs, down to the Os pubis, and divided into four or five portions by three or four intermediate Perigraphæ, or transverse tendinous Intersections. The vessels which pass underneath its upper part are the Mammary Artery Descending, and its Vein Ascending. Those of its lower part are the Epigastric Artery Ascending, and its Vein Descending. The inclosure of this Muscle in the double Tendon of the Ascendens we could never yet discern, rather suspecting that the adhesion of the Ascending Tendon to that of the following Muscle in the Linea semilunaris might occasion the mistake.

TRANSVERSALIS.

So called because its Fibres run transversely over the Abdomen. This Muscle does not arise, according to the vulgar tradition, from any Ligament, whether springing from the Os sacrum, or covering the Sacrolumbus; but, as Realdus Columbus truly writes, from the transverse Processes of the Lumbal Vertebrae, Spine of the Os ilium, Ligamentum pubis, and Cartilaginous endings of the Ribs below the Sternum, from whence its fleshy part passes over the convex surface of the Peritonæum, and becomes a broad expanded Tendon before it runs under the Rectus to its implantation in the whole longitude of the Linea alba. When this Muscle with its partner act, they press the Abdomen directly inwards, as in expiration. Caspar Bartholin observes in bulls and animals of the larger size, that part of this Muscle is continuous with the Diaphragm at the Cartilaginous endings of the Ribs below the Sternum; whence he supposes the Diaphragm to be a Trigastrick Muscle. But whether this observation will quadrate to a human body, whose posture is erect, and manner of respiration different from that of Quadrupeds, we leave undecided till farther enquiries afford us better information. The Spermatic Vessels pass through this and the Ascendant Muscle near the Inguina, in the mid-way between the fore-part of the Spine of the Os ilium and Os pubis, whence descending for some space between the fleshy part of the last named, and Tendon of the Obliquus descendens, they run through a fissure of the said Tendon, near the last-named Bone. These perforations not exactly corresponding to each other, is an artifice in nature to prevent a Prolapsus of the Intestines through them, not much unlike that oblique insertion of the Ureters and Ductus biliaris passing between the Membranes of the Intestines and Bladder, whereby the retrocession of the Bile in one, and the Urine in the other, is prevented.

In the dissection of these Muscles care must be taken not to wound the Cremaster on either side.

Galen in his *Treatise on the Dissection of the Muscles*, and that on the *Preservation of Health*, remarks, that the action of the Abdominal Muscles is necessary to the action of expiration, as they pull down the Thorax; and is very useful in efforts to speak loud.

In several places the same author takes notice, that without the contraction of these Muscles, we could have no stools, neither could we make water; for the actions of the Sphincter Muscles of the Anus, and Bladder, are overcome by the actions of the Abdominal Muscles, and Diaphragm (*De administrationibus anatomicis. De sanitate tuenda*).

He farther observes (*De Locis affectis*) that some people who find a difficulty in going to stool, or have a suppression of urine, relieve themselves, by pressing the Abdomen with their hand.

He also tells us, that the expulsion of the Fœtus is the work of the Abdominal Muscles. *De Naturalibus Facultatibus*.

ABDUCERE, is used, by Scribonius Largus, for *Bibere*, to drink.

ABDUCTION. A species of fracture, when a Bone near the joint is so divided transversely, that the extremities of the fractured Bone recede from each other.

These fractures are said by Galen to be made *καυανδερ*, that is, in the manner the stalk of a plant is broken.

Abductio, in *Cælius Aurelianus*, signifies a Strain. It is mentioned as one of the causes of Ischiadic and Psoadic pains. *Morbor. Chronicorum*, l. v. c. 1. *Item vehemens Abductio vel raptus in Exercitio factus*.

ABDUCTOR, is a name given by anatomists to the following Muscles.

ABDUCTOR AURIS.

See *Retractus Auriculæ*, or *Triceps Auris*.

ABDUCTOR MINIMI DIGITI MANUS,

Hypothenar Riolani, or *Abductor Auricularis*, arises fleshy from the thin protuberating part of the Eighth bone of the Wrist;

Is inserted by a pretty long and round Tendon, on the inside of the short Tendon of the above described Muscle, near the upper part of the First bone of this Finger.

It serves not only to abduce the Little-finger from the rest, but also to bend it a little.

ABDUCTOR INDICIS

Arises broad and fleshy from the superior part and outside of the First bone of the Thumb;

Is inserted by a short Tendon into the upper part of the First bone of the Fore-finger, laterally, next the Thumb.

Its use is to bring the Index towards the Thumb, by drawing it from the Middle-finger.

ABDUCTOR MINIMI DIGITI PEDIS

Arises fleshy and tendinous from the semicircular edge of a cavity on the outside of the inferior Protuberance of the Os calcis; it has another tendinous beginning from the Os cuboides, and a third from the upper part of the Os metatarsi minimi digiti;

Is inserted into the upper part of the First bone of the Little-toe externally laterally.

A B E

Its use is to draw the Little-toe outwards from that next to it.

ABDUCTOR OCULI

Arises tendinous and fleshy from the Foramen lacerum, without the Orbit ;

Is inserted by a thin Tendon into the Sclerotis, where it respects the great Canthus.

Its use is to move the Eye outwards; from the great to the little Angle.

ABDUCTOR POLLICIS MANUS, or THENAR,

Arises by a broad tendinous and fleshy beginning from the transverse Ligament of the Carpus, and from one of its Bones that articulates with the Thumb ;

Is inserted tendinous into the second Joint of the Pollex digitorum manus.

Its use is to draw the Thumb from the Fingers.

ABDUCTOR POLLICIS PEDIS

Arises fleshy from the inside of the lower Protuberance of the Os calcis laterally, and tendinous from a little Tubercle in the same Bone, near the Os cymbiforme. It only adheres to the other Bones on the inside of the Foot, filling up the hollowness in the Os metatarsi pollicis ;

Is inserted into the internal Os sesamoideum of the First bone of the Great-toe, its Tendons being farther continued upon the same Bone laterally.

Its use is to pull the Great-toe from the rest.

ABDUCTOR FEMORIS PRIMUS

Arises by a strong roundish Tendon from the upper part of the Os pubis next the Pectinæus above the Gracilis ; which turning into a compact fleshy belly, it begins to be

Inserted tendinous about the middle of the Linea aspera, being continued down upon the same five or six inches, sending out a Tendon which joins in with that of the fourth Head.

ABDUCTOR FEMORIS SECUNDUS

Arises from the Os pubis, immediately under the Gracilis, by a broad tendinous, but chiefly fleshy beginning ; and

Is inserted into the Linea aspera, from a little below the lesser Trochanter, to the first insertion of the last described Muscle.

ABDUCTOR FEMORIS TERTIUS

Arises lower down than the former, from the outer edge of the Os pubis and Ischium ; and, running obliquely towards the Trochanter minor,

Is inserted near the Glutæus maximus.

ABDUCTOR FEMORIS QUARTUS

Arises from the Protuberance of the Ischium, and the adjoining interior part of that Bone, by a tendinous and fleshy origination ;

Is inserted by a round and long Tendon, into the upper and rough part of the inner and lower Appendix of the Os femoris, being affixed to that Bone a little above the Condyle ; as also to some part of the Linea aspera.

The use of all these four Muscles is to adduce or move the Thigh-bone inwards, according to their different directions. *Douglafs.*

ABEBÆOS. Ἀββαίος. Infirm, weak, inconstant. *Castell.*

ABELE. A species of Poplar. See POPULUS.

ABELICEA. The name of a very tall tree, growing principally in Crete, called also Santalus adulterina, and Pseudofantalum.

Honorius Bellus thinks this was not taken notice of by the antients, unless perhaps it may be the Ulmus montana of Theophrastus. *Ray's Hist.*

ABELMOLUCH. A sort of Ricinus, or Palma Christi. *Ray's Hist.*

ABELMOSCH. Blancard informs us, that this is the seed of an Egyptian plant, which has the smell of musk ; which, for its agreeable flavour, the Arabians mix with their coffee.

The plant of which this is the seed, is the Alcea Ægyptia Villosa of Casp. B. Ægyptia moschata of Parkinson, Belmufchus Ægyptia of J. Bau. and *Ab-el-mosch* sive Mosch Arabum of Vesslingius. *Ray.*

ABESAMUM. This is by Rulandus, and from him by Johnson explained *Lutum Rotæ*. But the High Dutch word, by which Rulandus translates it, signifies no more than Dirt, or Clay.

ABESSI. The same as Rebis. They signify the matter that remains of the aliment after the Chyle is separated from it, that is, Excrement.

ABESUM. Unslacked, or Quick Lime. See LIME.

ABEVACUATIO signifies a partial or incomplete eva-

A B L

cuation of the peccant humours, either by the force of nature, or assistance of art.

ABICUM, the same as Coopertorium. A covering. *Castell.* See COOPERTIO.

ABIES. The Firr.

There are three sorts of Firrs mentioned by Dale, as used in medicine.

The first is the silver Firr, of which the tops and leaves are recommended in diet-drinks for the Scurvy ; and Miller tells us, a good quantity of them are said to be used in making Brunsvic mum. I am informed a decoction of the wood, or saw-dust, is much used by the people of the countries where it grows in plenty, in disorders of the urinary passages, and for the Fluor albus.

The Strasburg turpentine is the product of this Firr, and is called its Liquid resin, to distinguish it from the Dry resin, which has somewhat the appearance of Frankincense. See TURPENTINE, ROSIN.

This Firr is distinguished.

ABIES, *Offic. Ger.* 1181. *Emac.* 1363. *Park. Theat.* 1539. *Raii Hist.* 1394. *Synop.* iii. 441. *Merc. Bot.* ii. 15. *Phys. Brit.* 1. *Mer. Pin.* 1. *Ind. Med.* 1. *Mont. Ind.* 35. *Abies conis sursum spectantibus sive mas*, C. B. *Pin.* 505. *Jonsf. Dendr.* 329. *Buxb.* 1. *Abies fœmina sive ἑλάνη θηλεία.* *J. B.* i. 235. *Abies fœmina*, Chab. 68. *Abies Taxi foliis*, *Raii Hist.* ii. 1394. *Abies Taxi folio, fructu sursum spectante*, *Tourn. Inst.* 585. *Elem. Bot.* 457. *Boerb. Ind. A.* ii. 179. *Rupp. Flor. Jen.* 270.

The second mentioned by Dale is, the Virginia, or Canada Firr-tree, which produces the Balsamum Canadense, or Balsam of Canada.

This is called *Abies Canadensis.* *Ind. Med.* 1.

ABIES minor *peclinatis foliis Virginiana Conis parvis subrotundis.* *Pluck. Phytog. Tab.* 121. *Almag.* 2.

The third is the Pitch-tree, or common Firr.

This produces a sort of Turpentine, of which is made,

1. White Rosin. See ROSIN.

2. Tarr. See TARR.

3. Common Pitch. See PITCH.

4. Burgundy Pitch. See PITCH.

This Firr is called

Picea, *Offic. Ger.* 1173. *Picea vulgaris*, *Park. Theat.* 1538. *Picea major*, *Jonsf. Dendr.* 325. *Picea major*, *Ger. Emac.* 1454. *Picea major prima, sive Abies rubra*, C. B. *Pin.* 493. *Picea Latinorum*, Chab. 68. *Picea Latinorum, sive Abies mas Theophrasti*, *J. B.* i. 238. *Abies, Picea, Volck. Flor. Nor.* 1. *Ind. Med.* 1. *Abies rubra, Picea, Mont. Ind.* 35. *Abies mas Theophrasti, Raii Hist.* ii. 1396. *Synop.* iii. 441. *Abies tenuiore folio, fructu deorsum spectante*, *Tourn. Inst.* 585. *Elem. Bot.* 457. *Boerb. Ind. A.* ii. 179. *Dill. Cat. Giff.* 49. *Rupp. Flor. Jen.* 270. *Abies Conis deorsum spectantibus*, *Buxb.* 1.

There are a great number of Firrs besides these, which it will be sufficient just to mention, as being little concerned in medicine.

ABIES *Taxi folio ; fructu longissimo, deorsum inflexo.* The Yew-leaved Firr-tree, with long hanging Cones, commonly called, the Long Coned Cornish Firr.

ABIES *Piceæ foliis brevibus ; Conis minimis.* *Rand.* The pitch-leaved Firr-tree with small Cones.

ABIES *Piceæ foliis brevioribus ; conis parvis biuncialibus laxis.* *Rand.* The shortest pitch-leaved Firr-tree, with loose Cones.

ABIES *Taxi foliis ; Odora Balsami Gileadensis.* *Raii Hist. App.* The Balm of Gilead Firr, *vulgo.*

ABIES *Taxi folio ; fructu rotundiori obtuso.* The Yew-leaved Firr-tree, with round Cones. By some called, the Balm of Gilead Firr.

ABIES *foliis prælongis, pinum simulans.* *Raii Hist.* Firr-tree with long leaves, resembling those of the Pine-tree.

ABIES ORIENTALIS, *folio brevi et tetragono, fructu minimo, deorsum inflexo.* *Tourn. Cor.* Eastern Firr-tree, with short square leaves, and small fruit hanging downward.

ABIES MAJOR SINENSIS, *peclinatis taxi foliis, subtus cæsis, Conis grandioribus sursum rigentibus, foliorum et squamarum apiculis spinosis.* *Pluck. Amalth.* Great Firr-tree of China, with Yew-leaves, large Cones growing upright, and the points of the leaves prickly.

ABIES MAXIMA SINENSIS, *peclinatis taxi foliis, apiculis non spinosis.* *Pluck. Amalth.* Greatest China Firr-tree with Yew-leaves, not prickly at their points.

ABIGA HERBA. An herb called also *Chamaepitys*, or *Ground Pine*. It is probably called *Abiga*, from *abigo* to expel, because it is said to promote Delivery. Or, perhaps from the similitude of its leaves to the *Abies* or *Firr*. *Blancard.*

ABIT, or ABOT. Cerufs. *Castell.*

ABLACTATIO. Ablactation, or weaning a child.

An infant ought to be nourished by milk till it has acquired a firmness ; after which you may feed it with crums of bread in Mulsim, (wine mixed with hony) sweet wine, or milk ; and, after a little while, with a poached egg ; for food which requires chewing, is filled too much with Saliva in their Mouths.

Mouths. His drink must be diluted wine. When you can safely venture to give him food made of corn, (which is commonly about the twentieth month) by degrees, and in an artful way, diffuse him to the Breast. If he falls into a distemper after he is weaned, put him to the Breast again; when the disease is gone, use your best care to nourish and put him in good heart, and then set about weaning him as before. *Ætius, Tetrabib. i. Serm. 4. c. 28.*

Weaned infants must be diverted and recreated all manner of ways, and their aliment must be light, and of good juice. But the child, who has a good temperament of body, must not be suffered to drink much wine; for, in hot and moist Bodies, wine fills the Head with vapours. Nor is it my opinion that they should be utterly debarred from cold water; for, in hot weather especially, and the intervals of eating, I allow them the drinking of it, provided it be very good. *Ætius, Tetrab. i. Serm. 4. c. 29.*

As nature has taken care to provide an aliment suitable to the tender stomachs of new-born infants, so has it given us plain directions when to change it for a diet that is more solid and difficult of digestion.

It is well known to observers of nature, that exercise and motion are the grand promoters of digestion, inasmuch that a labourer of a moderate strength and constitution, shall digest aliment of any kind without difficulty; whereas sedentary people, though much more robust originally, shall in time scarcely be able to sustain a diet of the most innocent food without the symptoms of indigestion. Digestion then seems to be, *cæteris paribus*, in proportion to motion.

Whilst therefore a child is incapable of sufficient exercise and motion to digest solid food, a thin fluid is provided for his sustenance, which is almost converted into nourishment, before it is taken into the Stomach of the infant. And for fear the mother should be so imprudent as to offer it improper aliment, Providence seems to have secured the tender Stomach in some degree from the mischiefs of indigestion, by a singular artifice, that is, by denying the child the use of teeth for the first months.

From these observations it will appear, that a child ought not to be weaned, till nature points out the proper time, by giving it teeth, and making it capable of motion sufficient to comminute, and afterwards to digest an aliment more solid, and more difficult to dissolve, than the milk of its mother.

But because an infant is furnished by degrees with the instruments of mastication, and the power of using exercise, the transition from milk to solid food should not be sudden.

Agreeable to this are the directions given by authors for the nourishment of young children. They tell us the milk of the parent should be the only food of children for the first two or three months, provided a sufficient quantity can be supplied without inconvenience; that afterwards pap, panada, and bread boiled with milk, must prudently and gradually be introduced into their diet, till their abilities for mastication and motion render them capable of digesting more solid aliment, and at last flesh.

Hence it appears how little those mothers consult the health of their children, who wantonly, and without any necessity, take them from the breast soon after they are born, and substitute a diet not to be digested in their tender stomachs, in the room of that which nature has provided for them, and accommodated to their constitutions.

A very few observations on the usual food of infants will set this in a clearer light.

The milk of a healthy woman in the flower of her age, is the most easily digestible of any aliment whatever, provided she uses moderate exercise, and a proper diet; and for that reason is the greatest restorative in nature. Many instances occur in authors, of grown people, reduced by distempers to the utmost degree of weakness, who have been restored by sucking the milk of women provided for that purpose.

These salutary effects of milk are very easy to be accounted for, if we consider the Stomach as the laboratory of health, and milk as a fluid, either secreted from the mass of blood in the Glands of the Breast, or else communicated immediately to the Breast from the receptacle of the Chyle, by some Ducts not yet discovered. When this is taken warm as it comes from the Breast, it gives the Stomach very little trouble to digest it, having lately passed the digestive Organs of the woman. It is therefore easily convertible again into Chyle, from which it differs but very little.

But I must not omit observing, that milk, like all animal fluids, loses most of its virtues when it has been suffered to grow cold, and this irretrievably; for warming it again will not restore them. But if milk is boiled, the qualities that rendered it an eligible food, are utterly destroyed, and from that moment it becomes an improper aliment for weak and tender Stomachs.

Bread boiled in water is a food for children frequently substituted for milk; but is not by far so proper; for bread thus boiled will grow glutinous, and viscid, if not well fermented,

but if well fermented, it soon turns sour. In both these cases a considerable action of the Stomach is required to convert it into Chyle; for otherwise, violent gripings, difficulty of breathing, inflammations of the Belly, convulsions, and death, must be the consequence.

It is not possible to lay down rules for the weaning children, adapted to every case that may occur. Regard is to be had to the strength and health of the mother, as well as of the child. Upon the whole we are to pursue the method which nature seems to point out, unless some circumstances interfere, which make it impracticable. Rules may be drawn from what has been represented above, which may, with a little variation, be accommodated to particular cases.

ABLATIO. This signifies the taking away any thing from the Body that is useless or prejudicial to it; and comprehends all manner of evacuations.

It sometimes is used to express the subtraction of part of the usual diet, with a medicinal view.

It also signifies the interval betwixt two fits of a fever, or the time of remission.

Chymical *Ablation* is the removal of any thing that is either finished, or else no longer necessary in a process. *Rulandus, Johnson, and Castellus.*

ABLUENTIA MEDICAMENTA. Diluting medicines, or medicines made use of to dissolve and carry off the acrimonious and stimulating salts in any part of the Body, especially the Stomach and Intestines.

ABLUIREN. Washing, or purifying. *Rulandus.*

ABLUTIO. Ablution, or washing either the external parts of the Body by baths, or the internal, by thin diluting fluids, as whey, &c.

Chymical *Ablution* is the purification of a body by repeated affusions of a proper liquor. The usual way of doing this is by Cohobation, or pouring the liquor distilled from the body upon it again, and repeating this, if necessary, several times. See **COHOBATION**.

Or else by making the containing vessel a Circulatory; that is, either closing it at the top, or luting another vessel inverted upon it; then when the vessel is committed to a proper furnace, the liquor which distils to the top, returns again upon the ingredients to be purified, till the operation is finished. See **CIRCULATORY**.

Isaacus Hollandus in his *Treatise of Minerals*, or *The Philosopher's Stone*, mentions an alchymistical *Ablution* of a fætid earth, in order to the production of a stone endued with extraordinary qualities. But I do not know what he means, nor did I ever meet with any body that could understand him. The reader may consult his work in the *Theatrum Chymicum*, p. 435. vol. iii.

The Chymists also use *Ablution* in the common sense of the word, which wants no explanation.

ABOIT. Cerufs, or white lead. *Rulandus.*

ABOMASUM. The name of the Fourth stomach of a beast that ruminates, or chews the cud. The first is called Venter, the second Reticulum, and the third Omasus.

ABOMINATIO. By some barbarous writers this is used to signify the same as Fastidium ciborum, or a loathing of food.

ABORTUS, or **ANORSUS.** A Miscarriage.

Some authors tell us, that *Aborsus* signifies a Miscarriage during the first months of pregnancy; and *Abortus* one that happens near the full time of gestation. But there is no foundation for such a distinction, both signifying exactly the same thing.

Miscarriages happen at any time, and from various causes; but most frequently about the end of the third month, as was observed by Hippocrates. The first history of a Miscarriage upon record is one of six days, as related by Hippocrates. The Grecian courtesans made no scruple of procuring *Abortion*, because being with child interfered with their interest, as it sunk their value, and spoiled their market; and it appears, that it was not esteemed dishonest for a physician to direct the means; otherwise Hippocrates would not have told us in plain terms, that he advised the method that made the young woman, of whom the above-mentioned history is given, miscarry.

This author informs us, that what was discharged from the Uterus six days after conception, had the appearance of an egg without a shell, except that it was round and red. He discovered some white thick Fibres on the inside the Membrane, inclosed in a thick red Ichor; and on the outside of the Membrane, something that had the appearance of thick, black blood. (*αἷμα ὀλίγον*).

La Motte also observes, that a very young Fœtus involved in its Membranes, has the appearance of an egg without a shell.

Galen in his *Commentary on the third Book of Epidemics*, says, a Miscarriage is often caused by too violent dancing, by a fright, by poison, a purge, or forcing medicines; by excessive bleeding, whether from a wound or the Hæmorrhoids. But there are many other causes of *Abortion*, of which I shall give particular examples.

A continued and obstinate looseness in a woman with child, endangers her fruit. If milk flows out of her Breasts, it is a sign of the weak condition of her child; but plump and hard Breasts, are evidences of a sound and healthy Fœtus.

In a woman with child, if her breasts grow soft and flabby on a sudden, there is danger of a Miscarriage. A woman who has neither lain in, nor is with child, but yet has milk in her Breasts, has a deficiency in her Menfes. *Celsus, lib. ii. cap. 8.*

The signs of a future Miscarriage are an evacuation first of an aqueous, and then a sanious and bloody matter. But when the infant approaches, first comes away pure blood, then clots of blood, and after them the Fœtus either shaped or unshaped. Many complain of an heaviness in their Loins and Hips, of pains about the Navel, in their Head and Eyes, a gnawing at their Stomach, coldness of the Extreme parts, fainting, shivering as under an Ague. Some fall into Convulsions, as in an Epileptic fit. But these symptoms, for the most part, happen only to such as have taken medicines to procure *Abortion*. As for those who use no violent means, the preceding signs of a Miscarriage, according to Hippocrates, are an unaccountable falling away of the Breasts, with a coldness and weight in the Thighs, which reaches to the Loins. Healthy women, and such as have naturally a loose Belly, and moist Uterus, and have brought forth large infants with easy labour, are of ripe years, lean, and not abounding with Blood, bear Miscarriages better than others. *Aetius Tetr. iv. Serm. iv. cap. 19.*

If the infant is separated from the Uterus, and fallen down into the passage, and is there detained, anoint the Body, and especially the parts about the Uterus, all over with Oil of Cypress mixed with Turpentine; and let the parts be daily embrocated with the same after delivery. If this does not succeed, let the woman sit over a decoction of aromatics, and let her use Sternutatories, or a fumigation of dry Resin, Bitumen, or Bee-glue, Cray-fish and Galbanum. These and such-like methods are to be tried, if an inflammation does not forbid it; but in that case we must be contented with Inseffion, or causing the woman to sit over such things as have a relaxing and mitigating virtue. If the infant be detained, from the closing of the womb, without an inflammation, let a pessary of paper and dry sponge, first a slender, afterwards a thicker one, be used; and anoint the extreme parts with Opopanax, or root of Panax, with Honey, and bruised Turpentine. If the Secundine does not follow the infant, we are not to extract it by violence; nor is the Navel-string to be cut, and the Secundine left behind; for strangulation, and other mischiefs, would certainly be the consequence. But if the extracting of the Secundine is long about, let the Navel-string be cut, and tied to the woman's Thigh, and let all endeavours be used to extract them. *Aetius Tetr. iv. Serm. iv. chap. 19.*

Women of a tolerable constitution of Body, who miscarry at the term of two or three months, without manifest cause, have their Acetabula, or Cotyledons, says Hippocrates, loaded with Mucus, which therefore are incapable of sustaining the Fœtus, and for that reason break off from the Womb.

They are to be cured by Phlegmagogues, which evacuate from every part. For he that begins with evacuating the part affected, before he purges the whole Body, and by that means prevents the influx of the humours, is like a man who labours at exhausting a well that is constantly supplied by never-failing springs. When we have finished the evacuation of the body, we may proceed to purge the Uterus of Phlegm. A very good purging lotion for Phlegm in the Womb is thus prepared: Cut a large Colocyntis, or bitter Apple at the top, and throwing out the seeds, extract the pulp, and fill up the cavity with *Oleum Lini*, (Oil of Oris) stopping it with the piece before cut off as with a cork, and let it soak a day and a night. Then set it in hot embers to boil, and afterwards strain out the oil; inject this oil warm into the Uterus. This medicine has made many a barren woman fruitful, by powerfully evacuating the pituitous redundances which hinder conception. The diet must be warming and drying, moderate exercise and frictions are to be used, and every thing that refrigerates is to be avoided.

As for those women who miscarry through weakness of the retentive faculty, the skin of a hedge-hog burnt, and drank in wine or water, by some natural property, proves beneficial in their case; the like effect follows if the *Labia pudendi* be anointed with the same. The hedge-hog and shell-fish calcined have the same virtue, which belongs also to myrtle-berries in wine, and *Oleum lentiscinum*, or *Sasinum*, if the parts are anointed therewith. A lotion also with the decoction of bramble, and myrtle, and such-like is advised. *Aetius Tetr. 4. Serm. 4. c. 21.*

Thus far the ancient medicinal writers. The moderns have made very considerable improvements in regard to Midwifery in general, and have excelled their predecessors in the methods of treating women under the hazardous circumstances of a Miscarriage, as well as in the directions they have given to prevent one, as will appear by what follows.

Miscarriages in general are produced by causes immediately

affecting either the child, the Placenta, with the Membranes, and *Funis umbilicalis* (Navel-string) or the Mother.

With respect to the child, whatever is the occasion of its death, certainly causes *Abortion* either sooner or later.

A tenderness of the Membranes involving the Fœtus, as it makes them liable to rupture upon very trivial occasions, often causes a Miscarriage.

There are frequent instances of a scirrhoty of the Placenta, and shortness of the Umbilical cord, both which have had the same effect.

In regard to the mother, all distempers, either acute or chronical, all passions of the mind, too violent exercise, lifting a weight, a fulness of blood, weakness from any cause whatever, stimulating medicines, straining in order to speak loud, and sometimes even a disagreeable smell, as of musk, amber-grease, civet, the match of a lamp, or snuff of a candle, are capable of causing abortion.

But the most frequent causes of Miscarriages are either too great stricture, or too great laxity of the Uterus. In the first case, the Uterus is not capable of a dilatation sufficient to make room for the Fœtus, as it increases in bulk. This is known by a great tension and hardness of the Belly, and violent pain therein. In the second, the Uterus is too weak to support the insculations of the Vessels of the Placenta into itself, after the Fœtus with the Membranes and Placenta are grown to a certain size and weight, and this of all other happens most frequently.

In both these cases the woman always miscarries at a stated time of her pregnancy, and seldom brings the Fœtus to maturity, till the general habit of the Body, or the particular state of the Uterus, is altered.

These two causes of *Abortion* are particularly pointed out by Hippocrates, who was also acquainted with most of the other causes specified above, from whom they have been transcribed by later authors.

I must not omit taking notice of the effects of coffee, which are said to promote the Menfes, and all Hæmorrhages, and therefore must be improper in pregnancy. *Grossley.*

Aloes ought never to be given to women with child, because it inclines to Hæmorrhages by rarefying the blood. *Grossley.*

No medicine prepared with sulphur is proper during pregnancy, because it inclines to *Abortion*.

The signs of an approaching Miscarriage, as represented by authors, are,

A sudden flaccidity of the Breasts.

A spontaneous discharge of a serous liquor from them.

An extenuation of the Belly, the upper part of it, and the sides sinking on a sudden.

A sensation of weight and heaviness in the Hips and Loins, succeeded by pains.

An incapacity, or great reluctance, for motion.

A pain in the Head and Eyes.

Grinding pains of the Stomach.

Coldness of the Extremities.

Faintings, a fever, shiverings, and convulsions somewhat like Epileptic fits.

A languid and less-frequent motion of the Fœtus than usual, when pregnancy is so far advanced as to admit of feeling it.

The immediate forerunners of a miscarriage are; increased pains in the Loins and Hips, extending towards the Womb; a dilatation of the orifice of the Womb; formation of the Waters; a discharge of the same, at first a little sanious, afterwards more bloody, then of pure Blood, and lastly of grumous Blood.

A frequent inclination to make water is reckoned amongst the symptoms of an approaching Miscarriage. *La Motte.*

Daily experience confirms the opinions of all authors, that a Miscarriage is more dangerous than a birth at the full period. There seems to be in the fruit of animals something analogous to that of plants. A walnut may serve for an example, which drops spontaneously from its *involucrium* or hull, when arrived at maturity; but whilst immature, is not separated without violence.

In like manner the Vessels of the Placenta inserted into the body of the Womb are easily detached from it at the full period, but before that time they adhere more firmly, and their cohesion is not dissolved without difficulty.

The danger of a Miscarriage is from the Hæmorrhage attending it; for the mouth of the Womb is more solid and more difficult to dilate than when the woman is at her full time, inasmuch that the Fœtus cannot so readily come away. Mean time, if any part of the Placenta is separated, the Vessels of the Uterus will not cease to bleed so long as the Fœtus or Placenta remain in it, because these contents prevent the part from contracting itself, and thereby diminishing the orifices of the bleeding Vessels.

These Hæmorrhages are often so violent, as to bring on faintings, to deprive the patient of the use of reason for the time, and to cause convulsions, which last are usually fatal, whether they happen during a Miscarriage, or soon after it. *Hippocrates.*

Some-

Sometimes the internal surface of the Uterus is so lacerated by the separation of the Placenta, as to render impregnation for the future impossible.

The Uterus is very subject to inflammations on these occasions, by reason of the force necessary to dilate its Orifice, and to separate the Placenta from it, and the great afflux of humours to the part. These inflammations are generally fatal, if considerable. See UTERUS, where the symptoms are described, and the method of cure related.

Miscarriages are often attended with great pain in the back-part of the Head. *Galen.*

A Miscarriage is more troublesome and dangerous in the first, than in any subsequent pregnancy, because the parts are not so easily dilated the first time, as after they have been accustomed to it.

Women either extremely thin, or very fat, are esteemed to be in more danger from a Miscarriage, than others.

A Miscarriage in the sixth, seventh, or eighth month, is more dangerous and difficult, than those which happen more early in pregnancy.

Women of a lax habit in general, or whose Womb is much relaxed by particular accidents, often miscarry easily, and without any ill consequences, especially during the first months.

Sometimes, according to the doctrine of Hippocrates, a Miscarriage which happens within the first sixty days after conception, does service, by regulating the Menstrual flux, which was before deficient; and this is confirmed by observation. Hence women who have been barren for many years from a deficiency of the Menses, continue to breed after a Miscarriage, or the expulsion of a False conception.

A Miscarriage from the Small-pox, Fever, or any acute distemper, is esteemed fatal; yet many cases occur, which are exceptions to this rule.

When a woman is with child that has been accustomed to miscarry, and especially when any of the symptoms usually preceding a Miscarriage appear, some precautions must be taken, in order, if possible, to prevent it; but if these prove ineffectual, and the woman miscarries, methods may be directed; which, if pursued regularly till she is again with child, will be more likely to be attended with success, and enable the woman to bring her infant to a mature birth.

The precautions to be taken during pregnancy, must be adapted to the causes that threaten a Miscarriage. And it will be prudent to distinguish these causes with all imaginable accuracy, and consider all the preceding and present circumstances that can give us any information, lest, by mistaking the cause, we should pursue a method that is superfluous, or, what is worse, dangerous.

A Miscarriage impending through the imbecility of the Foetus, is to be distinguished by a deficiency in the signs of advancing pregnancy, a languid motion of the Foetus at the age it should move with vigour, but particularly by the health of the mother compared with these.

The only precaution which can be taken in this case, is to cure the mother of the particular distemper she labours under, which it will be more prudent to attempt by regulating her diet, exercise, and the other Non-naturals, than by quantities of medicines, at that time never agreeable, and not always safe.

I once lived in a country where a medicine was vended which had so much reputation for these imbecillities of the mother and Foetus, that few women went through their time without it; and I had reason to believe it had been in some instances attended with success, insomuch that I thought it of importance enough to be worth taking some pains to find out. It proved to be the *Mistura aurea* of Fuller, without the least alteration.

Dr. Fuller says this medicine deserves the name of *Golden* more with respect to its virtues than the ingredients. He affirms that it very much invigorates both the mother and Foetus, and that it is capable of procuring the mother an easy labour, and of making the child healthy and strong, if a spoonful is taken twice a day for the last month of pregnancy.

If the Foetus is already dead, nothing is to be attempted to prevent a Miscarriage; nor on the contrary is any thing to be done to forward it, because nature will generally find out a proper time for its exclusion. For this reason the dangerous operation recommended by Celsus ought seldom or never to be put in practice; I mean that of delivering a woman by force of a dead child. Nor can forcing medicines be proper, because there are many instances of women who have gone to their full time, and then been delivered of a living child, after their pregnancy has been attended with most of the signs mentioned by authors of a dead Foetus.

There is no reason in general to fear the ill consequences to the mother that may attend the putrefaction of the Foetus in the Womb, because so long as the Membranes remain intire, the Foetus will not easily putrefy; and as soon as they break the Waters are excluded, and the Foetus is commonly expelled very soon after. *Mauriceau La Motte*

The signs of a dead Foetus in the Uterus are,

1. A cessation, or want of motion of the child, if pregnancy is far enough advanced to admit of its being perceived.
2. A sensation of a weight in the lower part of the Belly; which falls to which ever side the woman lies on.
3. Pains in the Belly, especially about the Navel and Loins, and an uneasy sensation in the Stomach.
4. An unusual coldness of the Belly, and of the internal Orifice of the Womb, perceivable by the touch; as also of the Nose and Ears of the woman.
5. An offensive Breath.
6. The Eyes seem hollow, sunk into the Orbit, and are deprived of their usual lustre; the Eye-lids are swelled, and the sight is less acute than usual.
7. The Face swells, and becomes of a dusky pale colour.
8. Frequent shiverings, fainting fits and convulsions, like Epileptic fits.
9. Want of sleep, uneasy dreams, and grinding of the Teeth.
10. A Tenesmus, or Strangury.
11. But the most certain sign is a discharge of foetid Sanies from the Uterus.

Those Miscarriages which are caused by the tenderness of the Membranes involving the Foetus cannot be foreseen, and consequently are not to be prevented by any precaution that can be taken. However a woman that has once miscarried from this cause, will do well to avoid all violent and sudden motion, which may give occasion to their rupture, in future pregnancies.

A Miscarriage from a scirrhus of the Placenta, or shortness of the Umbilical cord, can neither be foreseen nor prevented.

A Miscarriage threatened by any distemper either acute or chronical, is to be prevented either by curing the distemper, if that is possible, or by moderating the symptoms. This admits of so much variety, that 'tis impossible to lay down rules accommodated to every particular case.

If a woman has been subject to Miscarriages, she must be careful to avoid the usual causes of it; but especially the particular accident that has formerly made her miscarry.

For this purpose she must regulate the passions of the mind, and her friends and domesticks must take care that she is not surprized by any thing that may give her either sudden pleasure or pain. She must avoid all exercise, unless that which is very moderate, speaking loud, lifting of weights, all strong perfumes, and disagreeable smells, and above all things the embraces of her husband, which, by the universal consent of authors, are numbered amongst the most frequent causes of *Abortion*.

As an Hæmorrhage from the Uterus always precedes a Miscarriage, authors have in general regarded it as the immediate cause thereof, and accordingly have calculated their remedies to prevent or stop it: Therefore bleeding is on all hands recommended upon the very first symptoms of a Miscarriage, provided no considerable evacuation of any sort, or weakness on the part of the mother render it improper; but this is absolutely necessary, whenever there is any reason to apprehend a Plethora, or fulness of Blood.

Rest is not of less importance; the woman must therefore be confined to her bed, upon the very first approach of the symptoms of Miscarriage, and enjoined to rest there till they intirely disappear, or till a Miscarriage is unavoidable; mean time she must be kept very cool.

As pain is always a forerunner of a Miscarriage, gentle Opiates are greatly recommended, mixed with Restrictants, and seem admirably adapted to prevent an increase of the symptoms, and the consequences thereof; as they take off the stimulation, and consequently remove one great promoter of the Hæmorrhage so much to be dreaded.

The following form, and method of administering it, is recommended by Boerhaave.

Take Blood-stone powdered;

Armenian bole;

Dragon's blood, of each a dram.

Syrup of Myrtles, an ounce;

Solid Laudanum, three grains;

Plantain water, six ounces.

Let the patient take half an ounce of this mixture every quarter of an hour. See HÆMORRHAGE.

Astringent medicines and applications, and an astringent Regimen, as they prevent Hæmorrhages in general from the Uterus, are particularly recommended for that reason, as preservatives against *Abortion*.

For this reason all those medicines that are found effectual in moderating a profuse Flux of the Menses, are also serviceable in this case. See MENSTRU.

For this purpose Tincture of Roses is frequently prescribed; and Sydenham directs the following Electuary:

Take Conserve of Dried Roses two ounces.

Troches of Lemnian Earth, a dram and half.

Pomegranate Peel and Red Coral, of each two scruples.

Blood-stone, Dragon's blood, and Armenian Bole, each a scruple.

Syrup of Coral a sufficient quantity to make an Electuary.

Let the patient take the quantity of a large Nutmeg in the morning, and at five in the afternoon, drinking after it six Spoonfuls of the following Julap.

Take of the simple water of Oak-buds, and Plantain, each three ounces.

Of Barley Cinamon-water, and Syrup of Red Roses, each an ounce.

Spirit of Vitriol enough to make it agreeably acid.

Restringent Plaisters are ordered to be applied to the Region of the Loins by Sydenham, made of equal parts of Diapalma, and the Rupture-plaister. Others direct the same, with an addition of the Red-lead plaister, or Plaisters of other restraining ingredients, as Dragon's blood, Armenian bole, Mastich, Galls, Bistort-root and Red Coral, made up with Cypress Turpentine into the consistence of a Plaister.

It would be endless to give forms of medicines, and frequently prejudicial, because they are capable of being misapplied, unless particular regard is had to the causes of the disorder they are intended to remove, to which they must be adapted as circumstances shall direct. The reader will be more instructed by the following cautions.

1. Let nothing restraining be either given internally, or applied, when an approaching Miscarriage is so far advanced as to make the preventing it improbable, or impossible; for whatever then retards it is pernicious. Restringents then are particularly prejudicial, as they oppose the Relaxation of the internal Orifice of the Uterus, at this time so necessary to the expulsion of the Fœtus and Secundines.

2. When there is reason to believe the Fœtus is dead, let no astringents of any kind be made use of, because whatever then prevents a Miscarriage does harm.

3. When a Tension and Stricture of the Uterus make it incapable of a sufficient dilatation, and thereby endanger a Miscarriage, astringents are improper, as they increase the Tension, and consequently the danger.

I am sensible some authors are of opinion, that astringents are sometimes necessary, even in the cases last mentioned, to moderate a violent Flux of Blood. But they cannot answer the end proposed, so long as the Fœtus, Placenta, or any part of it, or the Clotted blood keep the Uterus distended, and the Blood-vessels thereof open; and when these are brought away, they are generally superfluous, because the Hæmorrhage usually ceases without any farther assistance, unless a Laceration of the Uterus, or some extraordinary accident render the regimen and medicines necessary, which are specified under the article HÆMORRHAGIA.

The precautions that are taken against a Miscarriage during the time of pregnancy, are seldom so effectual as those which are taken in the interval betwixt a Miscarriage and the next impregnation. These consist in restoring to the woman a perfect state of health in general, particular regard being had to the disorders of the Uterus.

If from the symptoms of great Pain, Tension and Hardness about the Region of the Uterus, antecedent to a Miscarriage, there is reason to suspect the Uterus is too tense to admit of sufficient dilatation, the general Habit of Body must be relaxed by the methods directed under the article STRICTURA. Or the Fibres of the Uterus may be softened by emollient Fomentations, Cataplasms, Injections, or Pessaries.

But at least nineteen out of twenty habitual Miscarriages are caused by a general Laxity of the Habit, or particular Relaxation of the Uterus; this case seems of importance enough to deserve some farther consideration.

By habitual Miscarriages, I mean such as have happened more than once at a stated period of pregnancy, without any evident cause.

'Tis remarkable that women of the lowest class are very little subject to this sort of Miscarriage; theirs generally proceeding from frights, falls, or acute distempers.

But with women in a higher sphere it is otherwise, many of them being scarce able to bring their Fœtus to maturity without the utmost care and caution, though no accident intervenes sufficient to account for their Miscarriages.

If we consider the usual causes of Relaxation, the reason of this difference will appear very plain.

I must anticipate here a little of what I have to say on the subject of Relaxation as a distemper, and observe, that the great causes of Laxity are, want of exercise, sitting up late at night, and sleeping long in a morning, and heat.

Women then in the lower classes of life, prevent or remedy this Relaxation, by a great deal of exercise, by going soon to rest at night, and rising early in a morning, and by exposing themselves to cold, all which are necessary to their subsistence.

But women in a higher sphere, who are not under these necessities, induce a Laxity, by using insufficient exercise, or none at all; by sitting up late, and sleeping long in a morning, and by keeping themselves always warm.

Women of distinction have for the last half century accustomed themselves to a very pernicious habit, which much contributes to the Relaxation of their Fibres; I mean that of

drinking their liquors warm. This, in some morbid cases, may be necessary as a medicine; but it is the utmost imprudence to make it habitual in a state of health. For as heat always relaxes, the part which first receives the warm liquor must in time be relaxed by it, and this Relaxation must be communicated to the rest of the body. Hence Indigestion, Lowness of spirits, Hysterics and Obstructions of all kinds, the parents of Chronical distempers.

I am sensible that all these effects have been charged upon Tea, by a very obvious mistake. But warm water is capable of all these mischiefs, if drank in the same quantities, without any Tea infused in it.

The causes of this universal Laxity direct us to the cure, which must be attempted as soon as the woman is recovered of one Miscarriage, in order to prevent another the next time she shall be with child.

The medicines and regimen most likely to answer this end, will be particularly specified under the article LAXITY.

But if it happens that the disorder is local, the rest of the habit being in a tolerable state of health, and the Uterus only relaxed;

In this case the remedies must also in some measure be local. Thus Restringent plaisters applied to the Region of the Loins are not to be neglected. As to Fomentations and Injections, they must be used with caution, lest if they are a little too restraining, they should interfere with the natural evacuation, so necessary to the health of the sex.

A Fluor albus frequently attends a Laxity of the Womb and parts adjacent, which must be cured by the methods directed under that article, whether it be the cause, or the effect of Relaxation.

But the light Chalybeate waters are of all remedies the most effectual preservatives against most sorts of habitual Miscarriages. These must be drank at the fountain-head by six o'clock in the morning, or sooner; and in the quantity of three, or at most four half-pints. Mean time the patient must use as much exercise as her health and strength will admit of, and in all respects conform to a strict regularity of life during their use, which must be for two or three months during the summer.

I have often known the Pyrmont or Spaw-water substituted for our own country Chalybeates, but must own I never saw any very extraordinary effects from them in this case; but whether their inefficacy has been owing to their adulteration, or to the loss of their virtues at this distance from the fountain-head, I cannot determine.

Chalybeate waters, drank under the above-mentioned regulations, are admirably well adapted to prevent Miscarriages, both as they contribute to restore the Uterus to its natural elasticity, and as they mend the whole Habit of Body, and have great virtues in removing Obstructions, the grand sources of Indisposition.

I could produce many instances of considerable cures performed by these Waters, which have fell under my own observation; and can affirm of them, what few physicians can say of any other remedy, that I do not recollect any one patient that ever made use of them with regularity, without a manifest alteration for the better.

Zacutus Lusitanus recommends in the strongest terms an Issue for preventing Miscarriages, a thing not unlikely to succeed, as it may contribute to keep both the mother and child in health; and consequently be a preservative against Miscarriages from disorders to which either are subject.

As the internal Orifice of the Womb is more solid, and difficult to dilate in a Miscarriage, than a legitimate birth, the exclusion of the Fœtus in this immature state must consequently be less easy, and attended with more danger. In both cases a violent Flooding is the circumstance the most to be dreaded, and can neither be prevented, or cured by any method whatever, so long as the Fœtus, or any considerable portion of the Secundines remain in the Womb.

In a mature birth the Placenta is commonly detached from the Uterus without much difficulty, and excluded by natural pains soon after the child, even though the midwife does not take care to bring it away the minute after the birth; but if it adheres, as it does sometimes, and is retained till the Flooding begins to grow excessive, a hand may be introduced, and the Secundines separated from the Womb, and brought away without much violence to the woman, the Orifice of the Uterus at this time usually admitting of a dilatation sufficient for this operation.

But in a Miscarriage it is otherwise, where a moderate Flux is often continued for many days, before the internal Orifice will admit the exclusion of the small Fœtus; much less will it suffer the introduction of a hand in order to separate the Placenta from the Womb, which in such cases is very subject to adhere to it.

When there is no longer any hopes of preventing a Miscarriage, and the Fœtus is retained, in case it does not lie across the Orifice, Hippocrates advises to make the woman sneeze; and during the effort to stop her Nose, and Mouth, that the whole

whole force of the Convulsion may as much as is possible be directed towards the Uterus. This I mention, because I find the women in the country make use of the same artifice with success.

But the general directions of the best authors, amongst which is La Motte, are to commit the whole affair to nature, even though we are satisfied the Fœtus is dead, and attempt nothing either by medicine or manual operations; unless the Flooding should increase to such a degree, as to become formidable, or Convulsions should render a forceable delivery, with all its inconveniencies and dangers, preferable to inevitable death.

This advice seems the more reasonable, as it is difficult to contrive any medicine to promote the expulsion of the Fœtus and Secundines, which do not at the same time rarefy the blood, and increase the Hæmorrhage, from whence the principal danger is to be apprehended; and as the manual operation is not less hazardous than painful.

When the dangerous symptoms mentioned above render immediate Delivery absolutely necessary, it must be performed without waiting for strong pains; because they seldom or never return after the Flooding is grown so excessive, as to bring on Faintings and Convulsions. Nor must we stay for a large dilatation of the Orifice of the Womb, which without pains is not to be expected; and it is less necessary in this case, because amongst the great inconveniences of weakness and Flooding; they are attended with the advantage of mollifying and relaxing in some measure the Orifice, thereby rendering the operation somewhat less dangerous and painful.

The situation convenient for the operation is thus, according to Celsus.

Place the woman upon her Back across a bed, and let her Thighs be bent forwards to her Belly, so that they may touch the Iliac, or Flanks.

Mauriceau advises to place the woman in the same manner across a bed, with the Head and Breasts somewhat higher than the lower parts, for her ease, and more convenient respiration. Then to bend the Knees so that the Heels may approach the Seat, whilst the Thighs are kept far asunder by two strong women, and a third lays hold of her under the arms to prevent her from sliding forwards.

Mauriceau also directs the operator, for his own convenience, to place himself on a seat directly before the woman, in such a manner that his Elbows, as he sits; may be just as high as the Pudenda.

Then the operator must anoint well his Hand with oil, fresh butter, or unsalted lard, and introduce it into the Vagina as far as the internal Orifice, into which he must first get one Finger, Celsus says the Index or Fore-finger, and then another; with these he must dilate the Orifice sufficiently to admit a third, and a fourth, till there is room for the whole Hand.

All this must be done by degrees, and with the utmost delicacy, avoiding, as much as the operation will permit, all manner of violence.

The Pudenda must also be well anointed with the ointments recommended for the operator's Hand; in order to facilitate the operation.

When the Hand is in the Womb, if the Membranes are yet intire, they must be broken; and then the Feet of the Fœtus must be laid hold of, by which it must immediately be brought away.

The next thing to be taken care of is the Placenta, which, if it sticks, must be separated from the Womb by the Fingers, and extracted, so that the least portion of it may not remain.

The Womb must farther be cleared of all grumous and coagulated Blood, which will cause the Flooding to continue, if suffered to remain in it.

In case the Fœtus is excluded, and the Placenta, or a portion of it, is retained, it is not always necessary to introduce the whole Hand into the Womb. La Motte gives some instances where a single Finger has been sufficient to separate the small Placenta, and afterwards to bring it away, by bending a Finger, and making it a sort of blunt hook. But these happened in the first weeks of pregnancy, when the Placenta was very small, and the Womb very little distended by it.

It has been observed before, that the operation ought not to be undertaken, unless absolutely necessary on account of violent Floodings; and the danger of forcing medicines has been remarked. I must add, that Cordials are attended with hazard, as they increase the Flooding in proportion as they raise the spirits.

When therefore the Placenta is retained, and the Flooding is not so violent as to render the operation immediately necessary, Opiates are the most likely medicines to promote the separation and exclusion of it, by relaxing the parts concerned, and removing that stricture which always accompanies pain.

To this end a single grain of Opium, an ounce of Diacodium, or twenty drops of Liquid laudanum, are often given in a convenient vehicle, with great success.

I think Boerhaave was the first that introduced this method into practice.

The same physician observing the inconvenience and danger of Forcing medicines, and Cordials in cases of large Uterine Hæmorrhages, occasioned by the retention of the Placenta; substituted in their room broths, which he directed to be taken in the quantity of a very few spoonfuls at a time, and to be repeated every four or five minutes, just as warm as new milk.

By this means the Stomach easily digests and converts into Chyle this small quantity of aliment, in its own nature easily digestible, and the patient is gradually supplied with Blood, in the room of that which she loses. Mean time she must be kept cool.

I have anticipated thus much of what will be explained more at large under the article Hæmorrhage, because no instructions should be wanting that might be of use to a woman under the hazardous circumstance of a Miscarriage.

For this reason, and for the sake of those who shall make the disorders of women their peculiar study, I shall end this article with a considerable number of cases, which will instruct much more than any general rules that can be laid down, and will in some degree supply the place of practice.

These cases are principally extracted from some few authors of our own country, Mauriceau, and La Motte.

I must not omit remarking a singular excellence of the last mentioned author. He seems to have observed nature with great diligence, and to have given the history of her operations with great accuracy; inasmuch that many of his cases seem almost made with a view to confirm some important maxims of Hippocrates, whom, I dare say, La Motte never read; otherwise he would not have failed to mention him, with a degree of ostentation peculiar to his countrymen.

OBSERVATION I.

A Miscarriage from a Stone in the Kidneys.

A woman of quality was many years afflicted with tormenting pains in the Kidneys, especially on the Left-side, where she was first seized; and though she was no less than fourteen times with child, she constantly came before her time in the eighth, or beginning of the ninth, month.

When I dissected her, I found the Left Kidney quite wasted; but the Right swelled to a prodigious bigness, in which, after I had cut through it, appeared a large Stone. *Bonetus.*

OBSERVATION II.

A Miscarriage from Water at the Origin of the Nerves.

A certain lady had been many years subject to Convulsive disorders, like Hysterics, but whenever she was with child; used to be taken with strong Convulsions like Hysterical fits. At the end of the third month, at which time she constantly miscarried, her Menstrues appeared, which continuing for two or three days to come away, accompanied with bits of torn Membranes, put her in expectation of miscarrying, which she always did soon after. At last she died of an Apoplexy.

Because I suspected the Womb to be principally affected, my curiosity led me to inquire first of all there; but I found that part perfectly sound, and in its right situation. There was nothing about the Womb, or its Appendage, that could be looked upon as the cause of this disorder; therefore we resolved to search for the principal and original cause of the distemper in the Head. Nor was our labour in vain; for the Brain had as it were suffered an inundation; all its Cells and Meanders were full of water, which had moreover insinuated itself near the Origin of Nerves that go to the Viscera, in such plenty; as to separate the Pia Mater from the Trunk of the Medulla oblongata the breadth of two Fingers. By means of these Nerves, the matter of the disease descending from the Head upon the Mesenteric plexus was doubtless the cause of all these Spasmodic pains and disorders, and the *Abortion* that followed. *Bonetus.*

REMARK.

Hippocrates seems to have directed the author of this case to search for the cause of the Miscarriage in the Head, though he does not name him. If he had not Hippocrates in view, the case is an instance of the great knowledge, and prodigious sagacity of the last mentioned author, who tells us, in his first book of *The Diseases of Women*, "That if the Head of a woman with child abounds with water (*φλιγματώδης*), the acrid water descends with violence from the Head to the Belly, and causes a slight Fever, and Convulsive motions, (*πράξεις*) which sometimes increasing become excessive. If such a case is attended with inappetency and weakness, there is great danger of an immediate Miscarriage."

OBSERVATION III.

Instances of Miscarriages from too much exercise.

Feb. 25. 1685, I attended a woman about three months gone with child, who miscarried while I was with her of a small Fœtus no bigger than a bee. The cause of this accident

gent, as it appeared, was a journey in a stage-coach, of a hundred leagues in five days, when she was about a month gone. The great agitation and shaking of the Body in that journey, it seems, destroyed intirely, or in part, the principle of life in that little Fœtus, who then ceased to grow. A month afterwards the woman voided some small quantity of Blood from the Womb, though only for a day or two. But the same symptom appeared again at the end of another month, and ended in her miscarrying of that little Fœtus, which ought to have been as long as one's Middle-finger towards the end of the third month, at which time Nature expelled it wrapped up in its Membranes with its Waters, in compass about the bigness of a small pullet's egg.

Now had this woman been blooded in the Arm before she undertook her journey, as I would have advised her; had she consulted me, she might have been preserved from this misfortune. For women with child are so much the more liable to receive hurt, as their Vessels are full of Blood; because the great stirring of the Body heating the Blood, and giving it a brisker motion than ordinary, the Vessels of the Womb, which are too full of it, expand to an extraordinary degree, and even sometimes break; wherefore Big-bellied women who are forced to take long journies, can use no better remedy to preserve themselves than Bleeding, which takes off the too great fulness of the Vessels. *Mauriceau.*

OBSERVATION IV.

April 1. 1685, I attended a woman who had miscarried an hour before of a small child of four months, which I judged, from its corruption, to have lain eight or nine days dead in the Womb, before Nature of itself expelled it. The Body of this Fœtus being very small and quite shrivelled, had, for that reason, very little dilated the internal Orifice, so that I had no room, for the present, to bring away the After-birth, and therefore left it to Nature, which did the business twelve hours after. For I judged it better to do so, than to offer violence to the Womb by dilating it so much as was necessary for extracting this foreign mass. This misfortune was owing to the woman's being too much shaken and agitated, by always using a very uneasy coach. *Mauriceau.*

OBSERVATION V.

April 22. 1687, I delivered a woman of a small male infant alive, being four months grown, about eight inches long, and proportionably big. This woman had hurt herself, as I fore-told, and fore-warned her against it, by going to Versailles in a very uneasy stage-coach. The great agitation and shocks she received in that journey, brought upon her, ten or twelve days before the Miscarriage, a small Flux of Blood, which continued till the day she miscarried, without anything besides remarkable. This child unfortunately perished by the imprudence of its mother, who, by neglecting the good advice I gave her, not to undertake that journey, in which she was thus injured, was herself, if I may so say, the murderer of her own child. *Mauriceau.*

OBSERVATION VI.

April 19. 1689, I delivered a woman of a male infant, five months and a half grown, who was still alive, though the mother had laboured under a moderate Flux of Blood, which was almost continual, the space of two whole months, increasing at last to such a degree as to hazard an *Abortion*. In this situation I advised the woman to keep her bed, or at least her chamber, that so she might, if possible, preserve her Great-belly to the end of her term. But instead of hearkening to my good advice, she undertook a journey in a coach, which was the direct way to destroy her infant, who lived but half an hour, though the mother was as well, after I had delivered her, as if she had lain in at the end of the natural term. *Mauriceau.*

OBSERVATION VII.

August 11. 1689, I attended a woman who had just miscarried of a small Fœtus, wrapped up in its Membranes and Waters, and supposed to be nine weeks grown, but no bigger than a French-bean, by which it appeared, that it did not continue to grow during all that time, being no larger than the Fœtus of a month. But as this little Fœtus was not at all corrupted, and the mother told me, that she had been very severely shaken in a coach five weeks before, I was of opinion, that it had only preserved a languishing life, since this violent agitation, and had not grown at all; or rather, that it ceased to live from that time, but was preserved from corruption in its Waters, till Nature expelled it. *Mauriceau.*

OBSERVATION VIII.

August 17. 1690, I delivered a woman of a False conception, which had excited a considerable Flooding, in which I found a little Fœtus no bigger than a grain of wheat.

This affords an undeniable proof that all these sorts of supposed False conceptions, are in reality nothing but After-births of abortive Fœtuses of this nature.

The woman then reckoned herself about two months and a half gone with child, and told me, that three weeks before she had been very much shaken and jumbled in a stage-coach, which probably destroyed the principle of life in the Fœtus from that time, and so was the cause of the *Abortion* that ensued. To which we may add, as another reason, the natural weakness of this Fœtus, which ought to have been much larger, had it been vigorous from the time of its conception. *Mauriceau.*

OBSERVATION IX.

November 7. 1681, I attended a woman who had miscarried of a dead child in the sixth month.

Twelve or fifteen days before this accident, she had been too much shaken and jumbled on the road in travelling. This brought upon her pains in the Belly, which lasted all that time, till at the end her Waters flowed off in great abundance, without any real pain. As the infant presented an Arm, the midwife believing at first sight it was the Foot, took no care but drew it out as far as the Shoulder, which put the child in a more unnatural posture than it was in before. In this situation of affairs, being ordered to attend the woman, I pushed back the Arm into the Womb. But as all the Waters were intirely run off a day before, and the Orifice of the Womb was too strait and too dry for me to introduce my Hand without violence, in order to turn the child, I judged it more prudent to trust Nature with the expulsion of the child, than attempt it by a too forcible extraction, plainly foreseeing that, since it was very small, it might easily come away in the same posture it was in, when the Womb should be sufficiently dilated; because the woman had already been mother to a child that was full grown, and gone out her term. It happened as I foretold, twelve hours afterwards, Nature of its own accord expelling the child, by means of some pains, which were excited by a clyster I had prescribed, and which had sufficiently dilated the Orifice. But the midwife who stayed to attend her, missing the opportunity, let the Womb close itself, and could not bring away the After-birth, which remained six hours longer, after which Nature of itself expelled it, as it had done the child; and the woman being thus happily delivered, did very well afterwards. Now I do not know, but if I had tried to take away the child by force, as I was desired when I first came, the violence I must have used in dilating the Orifice, so as to be able to introduce my Hand, might have been very prejudicial to the mother; whom I preserved by prudently committing the business to Nature, for reasons declared before. *Mauriceau.*

OBSERVATION X.

October 12. 1689, I delivered a woman of a child of four months, which she carried a whole month dead in her Womb, that is, since she took a journey into the country, which had very much fatigued her. The little Fœtus was all shrivelled, yet without any cadaverous corruption, being preserved all that while in its own Waters, which ran off the day before the mother miscarried.

Nothing extraordinary attended this *Abortion*, but the mother was as well afterwards as if she had gone out her time with a living child; for which she was not a little obliged to my good counsel, in advising her by no means to attempt bringing away the dead child by purgatives, as some physicians had proposed to her, before Nature itself endeavoured to expel it. For these sorts of remedies do nothing but irritate to no purpose, if they are given before she has begun her operation; which is very observable in those pangs which women feel, when Nature strives to disengage itself from a dead child, which differ in nothing from those that happen when she sets herself at work to bring a living child into the world. *Mauriceau.*

OBSERVATION XI.

July 19. 1687, I delivered a woman of a small child of five months, who was then alive. The mother had hurt herself by the fatigue and shaking of a journey of 150 leagues performed in haste, when she was two months and a half gone. This brought upon her, at that time, a distillation of reddish serosities from the Womb, with now and then some Blood, for the space of fifteen days, after which she was a little better, and even felt her child to move but a month before this accident. But this did not hinder her from miscarrying, as I plainly foretold four days before, since she neglected to keep herself in that state of rest and composure, which was necessary to preserve the fruit of her Womb.

We see by this example, that nine days rest, which Big-bellied women, who fear they are hurt by some considerable agitation of body, used to keep, is not always sufficient, since

since this woman could not secure herself from miscarrying by a rest of two whole months. *Mauriceau.*

OBSERVATION XII.

Madam the countess of — came into this country in May, 1703, having gone at this time three months with child. She sent for me, and when I came, I found her in bed, and perfectly well, except that she was fatigued with her long journey. She told me that Mr. des Forges at Paris had ordered her to lie in bed nine days, after her journey, and desired I would come to bleed her at the end of three weeks, after which she was to keep her bed nine days longer by the advice of the same gentleman.

I returned to bleed her at the time she appointed, and after this she punctually pursued the directions of Mr. des Forges.

I visited her every week for two months, during which time she took all imaginable care of herself. But on Tuesday night I left her after supper perfectly well, and the Thursday following a servant came in great haste to let me know his lady had felt some Colic pains ever since midnight. Before I could set out, another servant came to let me know his lady was very ill, and desired I would make all imaginable haste. When I came to her, I found her with all the signs of an approaching Miscarriage. The Waters were formed, and the Membranes ready to break, which they did a few moments after, and the child, being in a good position, came away, together with the After-birth.

It was a boy, which lived an hour. The mother recovered in eight days, and six weeks after returned to Paris. *La Motte.*

REMARK.

By this case we may learn, that the utmost precautions sometimes are insufficient to prevent a Miscarriage.

OBSERVATION XIII.

November 17. 1703, the wife of an officer of justice sent for me about three o'clock in the morning. She told me she had been at a wedding, that was celebrated with great demonstrations of joy, where she had been over-persuaded to dance; that since that time she had been heavy, and oppressed, and felt such a weariness that she could scarcely move; that she had perpetual inclinations for a stool, without being able to do any thing; and that she apprehended some ill consequence from these accidents, because she was at this time three months gone with child, and had since midnight perceived pains not unlike those she had formerly felt when in labour.

She then submitted to a proper examination, and I found matters so well disposed, that when I withdrew my Hand, I at the same time brought away a very small Fœtus, together with its Membranes, and the After-birth.

She soon recovered without the least accident. *La Motte.*

Instances of Miscarriages from Strains, Bruises, and Hurts.

OBSERVATION XIV.

January 12. 1693, I attended a young woman, who, after having gone with her first Big-belly near five months, had just then miscarried of a small infant all corrupted, which in all probability she had carried above six weeks dead; for it had only the proportions of a child of three months; and as the woman told me that about that very time of her pregnancy she had been extremely afflicted with a most violent vomiting for some days, I am of opinion that the Strainings in that vomiting did much more contribute towards injuring the mother, and causing her child to perish, than a pretty long journey which she took before, whence she returned in good health, and so continued for fifteen days, till she was seized with that violent vomiting; which also ought the more to be esteemed the true cause of this *Abortion*, because the woman had been sickly ever since that time, till the day that Nature of herself expelled the corrupt Fœtus, after which she recovered her perfect health. *Mauriceau.*

OBSERVATION XV.

The 10th of November, 1670, I attended a woman six months gone, who, for eight days past, had a moderate Flux of Blood, in which were some clots, occasioned by the shocks of a violent cough, which had enlarged the Orifice of the Uterus to a Finger's breadth; for this reason I told her she would certainly miscarry in a little time, although she felt no pain at present, because I was assured, from the opening of the Orifice, and discharge of Blood, that it was impossible for the agitation of so violent a Cough not to accomplish the mischief it had begun. The event answered, for the next day the woman miscarried of a child, which lived but a day and a half. *Mauriceau.*

OBSERVATION XVI.

February 12. 1690, I attended a woman who had just before

miscarried of a small Fœtus, no bigger than a little bee, though she reckoned herself near three weeks gone with child. For the last four or five days she had been afflicted with a small Flux of Blood, which might be owing to a stumble she told me she had made some days before, in conjunction with a fit of anger. But since the Fœtus was no bigger than one of fifteen days, it is probable, that having thrived so little since Conception, the mother would have miscarried if the stumble had not happened, because of the weakness of the Fœtus, whose principle of life might possibly be destroyed by some other cause, unknown to the mother. *Mauriceau.*

OBSERVATION XVII.

March 13. 1687, I delivered a young woman of eighteen, at the term of eight months, of her first child, which was a girl, and alive. The mother's travel being accompanied with a considerable Flux of Blood, made us dread the consequence, and the more because it proceeded from a violent stumble she had made some days before, which had somewhat loosened the After-birth. This obliged me to cut the Membranes, as soon as I could conveniently get at them, lest coming to be strained by the mother's Pangs, they should yet further loosen the After-birth, in which, when I had extracted it, after the child came away, I found hardened clots of Blood bigger than my Fist, and sticking very tenaciously on that side where the After-birth had begun to be separated from the Womb, when it was loosened by the shock received from the stumble.

The child was proportioned in bigness to those of its age, that is, a third less than a child of nine months, and a third bigger than one of seven. But though it was born exactly at the end of eight months, and its birth too early by a full month, it lived and did well. This example confirms me in the opinion that children of eight months are always much stronger, and incomparably more lively, than children of seven months, who, by reason of their smallness and feebleness, die almost every one in a few hours, or at most a few days after their untimely birth. *Mauriceau.*

REMARK.

Mauriceau makes this last observation, to confute an opinion which had prevailed from the most early ages, that a child at the term of seven months is more likely to live, than one born in the eighth.

This, though contrary to all manner of reason and experience, was probably founded on the Pythagorean doctrine of *Numbers*, according to which the number *seven* was endued with great virtues.

OBSERVATION XVIII.

January 4. 1712, the wife of a farmer, about a quarter of a league from this city, gone about three or four months with child, feeling considerable pains in her Belly and Loins, which bore downward upon the Uterus, sent for me. As these pains much resembled those of Labour, and as I found she had imprudently lifted a large quantity of corn, and carried it on her Back, I did not doubt but she was on the point of miscarrying; but upon touching her, I found nothing that could confirm me in this sentiment.

I therefore directed a clyster to be given, which was attended with so good success, that her pains ceased for several days.

Now as a vulgar prejudice has prevailed amongst the women, that the danger of a Miscarriage is over, when nine days are past from the time of the accident that threatened it, and as this period was over without any worse symptom supervening than what had appeared every one of the preceding days, those about her, who knew I apprehended a Miscarriage, began to exult, as believing there was no longer any reason to fear it. But as the pains continued, my suspicions did not cease; I therefore enjoined her strictly an uninterrupted rest, so long as she should be in this condition, and engaged to see her every day.

On the twentieth day in the morning, I was not much surprised to see a messenger who was dispatched to tell me his mistress's disorder was increased, and that she desired me not to be out of the way. Instead of waiting for another message, I made what haste I could to her, and found she had miscarried of a Fœtus about five inches long, and thick in proportion, which the midwife received, who had constantly attended her by my orders. I asked this midwife what was become of the little After-birth; she told me there was none, and that such small children never had any. Without disputing the point with her, I put the woman in a proper posture, introduced two Fingers into the Uterus, separated the little After-birth, brought it away betwixt the two Fingers, and shewed it the midwife, at which she was very much surprised. The woman was quite recovered in five or six days. *La Motte.*

OBSERVATION XIX.

February 14. 1679, I attended a woman who had just miscarried of a child six months grown, fifteen days after she had injured herself by lifting up her arms too high, in order to pull a nail out of some hangings.

As soon as she had strained herself, though in this slight manner, she was taken with a small Flux of Blood, which held her the two first days, after which, during the rest of the time, she only voided a bloody Serosity, like the washings of Flesh, with which she souled two napkins every day. But notwithstanding this accident, she had a favourable lying-in with this child, who was yet alive. The reason why Big-bellied women are hurt by straining to lift up their arms, is, because the great Muscles which enable them to stoop, being very much stretched by that action of the arms, violently compress the sides of the Belly and Womb, whereby the After-birth is in some measure loosened, and a Flux of Blood ensues, which is the cause of *Abortion*. Some women are so tender, that they cannot strain the least, when they are with child, without hurting themselves, and afterwards miscarriage, as the woman did of whom I speak. Others, on the contrary, are of so robust a constitution, that I delivered one, who, when she was seven months gone, fell three stories. For the house where she lodged being on fire, she fastened the sheets to the window, and swung off by them; but being frightened to find herself suspended in the air, she let go her hold, and though she was very big with child, and fell upon great stones, where she broke one of the Bones of her Arm, dislocated her Wrist, and bruised all her Body, she was cured, went out her time, and was well delivered of a lusty child.

This story, for its singularity, might pass for fabulous, were it not confirmed by a great number of eye-witnesses. *Mauriceau*.

OBSERVATION XX.

July 25. 1696, a young woman, the wife of a fadler, in the twenty-second week of her pregnancy, diverting herself in the shop with the apprentice, endeavoured to give him a kick with her Foot; but the boy being out of her reach, her Leg suffered a violent extension by the force with which she directed the blow. Hence she immediately felt such a violent pain in her Loins, her Groin, and all over the Belly on that side, that if there had not accidentally been a chair to receive her, she must have fell down in the middle of the shop. From the extreme weakness she immediately perceived, there was reason to apprehend the utmost danger, both in regard to the mother and child. The violent and continual motions of the latter, which were perceivable to us that were about her, witnessed the great agitation it was in, and made me apprehend an approaching Hemorrhage, or Convulsions, which could be remedied no other way than by an immediate Delivery. All the directions I gave her were, to lie in bed, which it was the more easy to comply with, as it was the only posture she could bear.

For six weeks the only inconvenience she laboured under from this accident was, excessive weakness; mean time I endeavoured to support her with broths of various kinds, and jellies of flesh, and twice I took away some Blood, for which she was neither stronger nor weaker. I also gave her some gentle cordials, which in appearance neither did her good nor harm, for which reason I discontinued them, and persisted in the use of good aliment, giving her occasionally a toast in wine.

In this situation matters continued till the seventh month, when she was seized with Labour-pains, and sent for me. I found the Waters formed, and felt the child through them presenting the Buttocks. I then placed her in a proper posture across a bed, broke the Membranes, pushed back the child till I could lay hold of the Feet, and brought it away in an instant. I then delivered her of the After-birth, and took all the care of her during her lying-in that I could. Every thing relating to Childbed proceeded very regularly, but in a manner somewhat different from what she had been used to in former lying-ins.

In three weeks she got up, something stronger, but yet very weak, in comparison of what she used to be before this accident. But a Cough and Fever immediately succeeding, precipitated her into a Consumption, of which she soon after died. *La Motte*.

OBSERVATION XXI.

November 15. 1692, I delivered a woman who had miscarried of a child of three months and a half, with so great a Flooding, that she fainted several times; and as this Fœtus had been dead ten or twelve days, which appeared by its withered state, and had made an opening of the Internal orifice only in proportion to the smallness and tenderness of its Body, I had no opportunity of bringing away the After-birth till five hours afterwards.

This woman had felt several fits of an Ague some time before

her Miscarriage, and had also strained herself the day before in pulling down a curtain-rod; which she imagined was the true cause of this misfortune; but as the infant was quite withered, and appeared to have been dead a much longer time, we may conclude, that this last cause had only concurred to the more speedy expulsion of the Fœtus, which the first, that is, the Ague, had already deprived of life, ten or twelve days before.

As soon as I had taken away the After-birth the Flooding stopped, and the woman recovered her health, which I could not have warranted, had I gone rudely to work immediately after Nature had expelled the Fœtus, whose bigness did not equal a third of the After-birth, of which I delivered her when the Womb had been sufficiently dilated to admit of it without violence; the Flooding itself also, by moistening and relaxing the part, contributing by accident to make the work more easy, in bringing off that foreign mass, which, by remaining there, was the cause of it. *Mauriceau*.

OBSERVATION XXII.

July 4. 1692, I attended a woman who had just then parted with the remainder of a fleshy Membrane, which was left behind in the Womb, being separated from another and larger part, which had been expelled two days before with a moderate Flooding, supposing herself to be then about ten weeks gone with child.

In this first part of the Membrane, which resembled what is usually called a False conception, there was a small corrupted Fœtus, of the bigness of a common bee, which had received no nourishment for above a month, at which time the mother injured herself by overstraining.

This is a further confirmation that all these pretended False conceptions are no other than After-births of small *abortive* Fœtuses, in which the Womb, by contracting itself after the Waters contained in their Membranes are discharged, changes the natural figure which they had before, and gives them that of its own cavity, which is round and oblong. *Mauriceau*.

OBSERVATION XXIII.

June 16. 1691, I attended a woman, who, the day before, had been delivered, by herself, of a Fœtus five months grown, which came dead, though the mother had felt it move but the day before. The cause of this misfortune was, that the woman, when she was but two months gone, was hurt by a friend of hers, a man, who not knowing her to be with child, had taken her in his arms, and squeezed her pretty closely, in order to get her out to dance for diversion. At that moment, it seems, she felt a great pain in her Belly, and the next day, all on a sudden, voided a good deal of water by the Womb, but nothing else at that time. But a month after, she had a Flooding, which lasted almost six weeks, with some cessation at intervals; and one day in particular, she voided several hard clots of Blood, which a physician, who was a near relation of hers, and a brother-surgeon, unadvisedly took to be real pieces of membranous Flesh; whence they entertained a notion that she was not with child, though I had assured them of the contrary, by letting them plainly see, that these supposed bits of Flesh, which they had taken for parts of some foreign mass, of the nature of a Mole, or False conception, were nothing but pure clots of Blood. But they would not believe me, so strongly were they prepossessed with their error, till the woman was brought to bed of this *abortive* Fœtus, some days after our conference, according to my predictions.

We learn, by this example, that we have no reason to wonder that nurses and midwives are often deceived in taking these clots for False conceptions, since physicians and surgeons are sometimes mistaken about them. But I was really much surprised to see a surgeon, who hath for a long time made a particular profession of the art of midwifery, so grossly mistaken as not to know when a woman is with child, and to take pure clots of Blood, which she voided some days before the miscarriage, for foreign masses, of which he thought the Womb was now entirely delivered, not dreaming that a child and its intire After-birth remained. *Mauriceau*.

OBSERVATION XXIV.

On the 21st of April, 1676, I attended a woman who had miscarried three hours before of a dead child of four months. Three weeks before this she had received some hurt in a crowd at church, from which time she always felt great pains in her Belly, and about the ninth day after this accident, began to void a little Blood. From that time she never felt her infant move, but had the misfortune to lose it without the After-birth, which remained behind, the midwife not being able to bring it away, because the Womb closed immediately upon the expulsion of the child. Having myself examined whether there could be any means found out to ease this woman, and having discovered that the Orifice of the Womb was only open enough to receive one Finger, I judged

judged it the safest way at present to trust Nature, and postpone the doing her any violence by endeavouring to extract this After-birth by so narrow an Orifice, the remedy in this case appearing to me worse than the disease. So I deferred it to the next day, when finding the Womb much more dilated, I happily delivered her of her Burden, and though she had at that time a Fever upon her, she did very well afterwards. *Mauriceau.*

OBSERVATION XXV.

July 19. 1693, a labourer's wife of the parish of Gourbeville had such a violent fall from her horse, that she remained a considerable time insensible. At this time she had been with child six months. I was immediately called, and found her come a little to herself; but upon examination could not find her Head had received any injury, nor could I discover any signs of approaching Labour, except that the child moved in an extraordinary manner, which was no wonder, considering the concussion she had received from the fall.

I ordered her to be laid on a sort of litter, and carried home; and then directed that she should take some good nourishment, and keep her bed for seven or eight days. From this time she never felt the child move, but it seemed like a weight which fell spontaneously to the side she lay on, which incommoded her much, but especially when she stood up, when pressing on the Bladder, it caused frequent inclinations to make water. In this situation she remained till her full reckoning was completed, her fall having neither advanced nor retarded the Birth. At this time I was called to deliver her, but the child was born long before I arrived, but was so weak that it died a few hours after, and the mother did very well. *La Motte.*

REMARK.

From this case we may learn that the exclusion of the Fœtus should never be precipitated, unless some dangerous accident renders it necessary for the preservation of the mother. Because all the symptoms usually attending the gestation of a dead Fœtus may occur, and yet the child may be born alive at the full period.

OBSERVATION XXVI.

On the 7th of December, 1688, a carrier's wife at the end of the fifth month of her pregnancy, as she was loading one of her horses with panniers, let one of them rest on her Belly.

For the two next days and nights she perceived her child to move much more than usual, and after that never felt it stir; but it seemed as a dead weight, which fell to which ever side she lay on, and by its pressure downwards, gave her frequent inclinations to make water. Upon this she lost her appetite, her Skin became of a lead-colour, and she complained of Lassitude all over, which circumstances obliged her to consult me. I immediately perceived that all these accidents were caused by the death of the child, which had been killed by the wound received from the pressure of the pannier.

I advised rest, which indeed was superfluous, because her extreme weakness would not permit her to stir.

Seventeen days after, upon perceiving Labour-pains, she sent again for me. I found her in excessive pain, and almost spent, so that I was obliged to support her with some wine and cordials; after this I delivered her of the child, which came with the Feet first. The After-birth readily followed, which was very black, but not fetid. This patient at last recovered, but with more pain and trouble than she had in all her former lyings-in. *La Motte.*

REMARK.

Two things occur in this case worthy of notice. The first is, that the child, after receiving the injury, moved in an extraordinary manner before it died; and this, *La Motte* in many other places tells us, generally happens before the death of a child.

The second is, that though the author was satisfied of the child's death, he did not endeavour to promote its expulsion by forcing medicines, or to extract it by Force. An example worthy of imitation in almost all cases that can occur.

OBSERVATION XXVII.

A. D. 1678, February 4, I delivered a woman of a dead child, fourteen weeks after Conception, which presented an Arm with the Navel-string. This woman had then five children living, and had been easily delivered of them all. But she told me that four years before she was laid by a surgeon, whom she named, who used her very roughly, and that she could never go her full term with any child since that time, but had miscarried just as she did of this last, and that she had like to have died in one of those Miscarriages in which the same surgeon left the After-birth in the Womb, of which she was not delivered till four days after, and then not without dangerous accidents. As the cause of these frequent Abortions seemed to me to proceed from the woman's conceiving before her Womb, which had been weakened by the former rough treatment, was perfectly re-established, I

advised her to part beds with her husband, at least for five or six months, that by this long rest, which was necessary for a part so much enfeebled by frequent Miscarriages, she might the better go out her full time, whenever for the future she should breed. She took my advice, which was the means of preserving several children she has had since, with whom she lay in as happily as she did with those she had before these Miscarriages. *Mauriceau.*

REMARK.

Mauriceau seems to have judged very well in this case. The Chalybeate waters would have greatly assisted this woman in fortifying the parts, and re-establishing her health.

OBSERVATION XXVIII.

November 24. 1687, I attended a woman, who had just before miscarried, at the end of two months and a half, of a small Fœtus no bigger than a bee, which Nature had expelled with a considerable quantity of Blood, which had been preceded by a distillation of reddish Serosity for several days. When I was called to deliver her of the After-birth, I found the Womb was intirely shut, and that there was no way to bring it off but by violent means, which might be more prejudicial to the mother, than the relief I could promise her from the extraction would have been beneficial. For this reason I thought proper to trust Nature with the business, which was not accomplished till the twelfth day after, and the foreign mass lay all that while in the Womb, and then was expelled half suppurated, after which the woman did well.

The principal cause of this *Abortion*, as I supposed, was a great costiveness in the time of pregnancy, which in this woman was so extraordinary, that she was sometimes fifteen whole days without going to stool; so that the great efforts she made to ease herself of excrements excessively baked and hardened by so long a stay, did at the same time very forcibly compress the Womb, which might very well be supposed to shake and loosen, and at last expel the newly-conceived Fœtus, as was the case with this woman, who had miscarried several times before. *Mauriceau.*

OBSERVATION XXIX.

July 22. 1691, I delivered a young woman of an After-birth, who had just before miscarried of a child of four months and a half; this the midwife received, but could not bring away the After-birth, which had its String broken.

Twelve days before this accident the woman happened to fall upon her Knees, and instead of retiring and composing herself to rest, took coach the same day. The next she was taken with a great pain in her Belly, for which I advised her to bleed in the Arm, and to keep her bed. This done, the pain went off intirely; but some days after, a Looseness came upon her, which lasted three days. This new disorder brought on the pain afresh, which at last ended in a Miscarriage as above. The child presented the Foot, with the Navel-string, by the beating of which I knew it was alive, as soon as the Membranes of its Waters were broken; but as it was this woman's First child, and the Womb very little dilated, I advised the midwife to wait till the Womb became more open, in order to avoid violent means, which might be hurtful to the mother, and could do no service to the child, whose tender body might have been dismembered, if any attempt was made to extract it before the Orifice of the Womb was sufficiently dilated. She was delivered the next day, with the success above related. *Mauriceau.*

OBSERVATION XXX.

July 12. 1681, I delivered a young woman of twenty of a small dead infant, four months and a half grown, the mother having hurt herself the day before by falling on her Knees; but the child appearing to me very corrupt, as well as the After-birth, and the woman telling me that she had not felt it move for some time past, and that her Urine had been extraordinary thick, I believed that the External cause, her fall, had only accelerated what the Internal cause would certainly have excited in a little time.

This woman, who was of a sanguine constitution, being with child a second time, was very apprehensive of falling into the same misfortune as before. But taking my advice, which was to bleed at the second month of her time, she was preserved from it, as she has been whenever she has since been with child, having six living children, of whom I happily delivered her at the usual time. *Mauriceau.*

OBSERVATION XXXI.

October 3. 1681, I delivered a woman of a child six months grown, which she had carried dead almost a month after a hard fall upon her Knees, not having felt the child all that time. She was in pretty good health for all this, only she felt now and then some risings of her Belly, as is common with women, whose children are dead. These risings pro-
ceed

ceded from an ebullition of the Waters of the child, and the other humours contained in the Womb, when heated and putrefied by the residence of the dead infant. Notwithstanding this accident the woman had a favourable time with this dead child, and enjoyed her health afterwards. *Mauriceau.*

OBSERVATION XXXII.

The 12th of August, 1678, I delivered a woman of a child five months grown, which came with its Feet foremost. This woman was so subject to fall and hurt herself, that this was the fifth child she had miscarried of successively from a like cause. When I was ordered to attend her, I found the Waters formed, which appeared of the bigness of a hen's egg, and the internal Orifice of the Womb open in proportion to the bigness of those Waters. But as that Orifice was only wide enough to receive a Finger, and made a strong strangulation in that place, I thought it the surest way to defer laying the woman for a little while, which I did for four hours, in order to avoid the violence I must have done to the Womb in its present condition.

During this delay, the Orifice being sufficiently dilated by some moderate pains, which were excited by a clyster I had ordered for that purpose, gave me an opportunity of taking away the child with ease, which could not have been done before, without very great difficulty, and perhaps hurt to the mother, who did well afterwards. It will be useful here to observe, that Big-bellied women being more subject to fall than others, not only from the weight they carry in them, and the weakness of their Legs, but because the prominence of their Belly hinders them from seeing where they put their Feet when they walk, they who are apt to hurt themselves by such falls, ought to lie in bed, or at least keep their chambers, as I advised this woman to do, in order to guard, as much as possible, against so melancholy an accident, which had happened to her five times one after another, for want of this precaution. *Mauriceau.*

OBSERVATION XXXIII.

March 30. 1693, I attended a Woman, who, after a Flooding, which held her two days, had just miscarried of a small Fœtus no bigger than a barley-corn, and still inclosed in its Membranes and Waters.

The mother thought herself two months gone with child when this mischance happened, and fancied, as her husband told me, that the cause of it was the too great attention she had given some days before to a frightful story of a lady who had her thigh cut off. But the minuteness of this Fœtus was a plain evidence that the true cause of *Abortion* was rather a violent fall she had six weeks before, which destroying at that instant the principle of life in the little Fœtus, it remained of the same bigness which it had then attained, and was preserved intire and incorrupt in its Membranes and Waters, the whole being of the shape and size of a pullet's egg without the shell, till discharged as above. As this Miscarriage was attended with no other accident than a moderate Flooding, the woman soon recovered her health. *Mauriceau.*

OBSERVATION XXXIV.

March 15. 1688, I delivered a young woman, at the end of six months and a half, it being her first pregnancy, of a female infant, proportioned in size to the time of its growth. This misfortune was chiefly owing to a fall which the mother received three days before, and was not a little furthered by the shortness of the infant's Navel-string, which was no longer than a quarter of an ell, Paris measure, and no more than a third of the ordinary and due length. For this reason the After-birth had been greatly shocked by the fall, where it must unavoidably be pulled by the child, on account of the shortness of the Navel-string.

This infant lived but a few hours, but the mother did very well, and I have since delivered her of two other children, which came at the full term, thrived very well, and had their Navel-strings of a due length. *Mauriceau.*

OBSERVATION XXXV.

A young lady of this city, when she had been with child about three months, made a party of pleasure with some of her acquaintance. The horses they rode on happened to be very uneasy, and she, by some accident, leaped from hers, and lighted on her Feet, but without perceiving any inconvenience from it for the present. But at night some reddish Serosities began to be discharged from the Uterus; Labour pains immediately followed, and the Fœtus came away. The lady was unwilling to acquaint any body with this accident, except her chamber-maid; but as the After-birth remained, there was a necessity of consulting somebody. This obliged her to commit the secret to her surgeon, who came to me, and took me with him, without telling me

for what, being willing I should have the recital of what had happened from the lady herself.

The Fœtus was extremely small, with a small piece of the Umbilical cord hanging to it.

I plac'd her in a proper situation, and finding the remainder of the Cord, I follow'd it to the internal Orifice of the Womb, which I found so much contracted, that it was not without difficulty that I introduced one Finger, with which I separated the Placenta from the Womb. After this I pulled gently the Umbilical cord, which was of more service to me than I could reasonably expect from the size of it. By means of this, and with the assistance of my Finger, which I employed as occasion required, to dilate the Orifice a little, I extracted the Placenta. But the purgation stopped, and a Fever ensued.

Notwithstanding this, she would not suffer the secret to be divulged to any body, so I was obliged to treat the case under the name of a Fever from a suppression of the Menfes. She lost some Blood both from the Arm and Foot; and I gave her a Pûsan, made with the Roots of Quich Grass (*Chenopodium*) the roots of wild Succory, Scorzonera, and a little Cinnamon. She had repeated clysters, made of a decoction of Mallows, Marshmallows, Mugwort, Chamomile, and Melilot, with an addition of Honey, of Fumitory, and Violets. At night she took Emulsions made of Sweet Almonds, sweeten'd with Syrup of Maiden-hair, and with this a few drops of strong Cinnamon-water.

All these medicines, though administred with great regularity, were of no service, for she died the fourteenth day after the Miscarriage. Some days before her death she became blind. *La Moite.*

Instances of Miscarriages from Frights.

OBSERVATION XXXVI.

March 10. 1687, I delivered a woman of a Fœtus of four months and a half, whose Waters were all run off two days before, without pain to the mother; and though it came away dead, it appeared to have been alive the day before by the beating of its Navel-string. But as the Womb was not at that time sufficiently dilated to attempt the Delivery, without offering too much violence to the mother; and the infant, who was otherwise very weak, would have certainly perished in the operation, I was obliged to defer it, till the proper Pangs coming on upon the mother might dilate the Orifice to a degree sufficient for the extraction.

The Miscarriage of this woman had no other manifest cause than a great fright which she had fifteen days before, when being in a coach, the horses started and ran away with it.

This example clearly shews, that great agitations of mind, and especially sudden Fear, make as effectual impressions on Big-bellied women, when surpris'd with it, as violent commotions of the body, and are equally causes of such sort of *Abortions*. Notwithstanding this accident the woman did very well after I had delivered her. *Mauriceau.*

OBSERVATION XXXVII.

From a Fright and Falls.

Sept. 30. 1684, I delivered a woman, who had a Miscarriage, at the term of two months and one week; and after I had examined the Afterbirth, I found in the middle of its Membranes a small Fœtus no bigger than a bee, not having thrived for five or six weeks past, because its principle of life had been destroyed by a violent agitation of mind and body, which the mother had undergone at the time when she could be no more than eighteen or twenty days, at most, gone. For not believing she was then with child, because the time of her purgation was not past, she took no care, but diverted herself with mounting and running after an ass for two days together, in which she received two unlucky falls; besides this, she had been under a great fright, having lost herself in a wood, where she was in great dread of robbers; so that the principle of life in this Fœtus being destroyed at that time, it never exceeded the dimensions it had then attained, but remained in that state a month or five weeks, and then the mother began to void Blood during ten days, at the rate of six or seven drops a day only.

But at the end of this term, she was seized all on a sudden with so excessive a Flux of Blood, as to run a risk of her life, if I had not at the same time delivered her of the After-birth of this little Fœtus, which seemed to be of the figure and magnitude of those foreign masses, which are commonly called False conceptions, but are in reality nothing but the After-births of those sorts of little *Abortives*, to which the Womb by contracting and closing, after the Waters contained in their Membranes are discharged, gives the figure of its cavity.

The woman afterwards recover'd her health by little and little, but continued from time to time, for near two months, to part with some small quantity of Blood, or tinged Serosity, except that one time this ceased for ten days, and several other times stopt for two or three days, complaining at intervals of pains like those of the Colic: But, what is very extraordinary,

fifty two days after I had delivered her of this Miscarriage, she voided a small Membranous and Fleſhy ſubſtance, of a globous figure, and no larger than a middling French-bean, and not at all corrupted, ſeeming to be newly ſeparated from the Womb. The expulſion of this little foreign maſs was preceded by a moderate evacuation of Blood, for three or four days, with Pains of the Belly and Loins. The diſpoſition of this little ſtrange maſs might tempt one to believe, that it was rather a little new Falſe conception, engendered ſince the firſt Miscarriage, during the ten days in which the woman had no evacuation from the Womb, than a remnant of a root of that After-birth, of which I had delivered her two and fifty days before, and which ſticking about one of the Cornua of the Womb, was there, having always ſome communication with it, preſerved incorrupt: this latter, however, we muſt believe, if it be true, as ſhe aſſur'd me, that ſhe had no communication with her husband, which might beget a ſuſpicion, that this ſmall fragment of a Membrane might proceed from a new Conception. *Mauriceau.*

A great Fright from Thunder.

OBSERVATION XXXVIII.

Auguſt 9. 1691, I attended a woman, who had miſcarried but two days before of a Fœtus of three months, which had been dead ſeven or eight days, after a ſudden fright of the mother, occaſioned by a great clap of thunder, which made her ſwoon away. The next day a Flooding came upon her, which at laſt brought on an *Abortion*.

The violent agitation and diſorder of the Mind alone had the ſame effect on this woman, as a too great agitation of Body often has on others. *Mauriceau.*

Frighted at Thunder.

OBSERVATION XXXIX.

Auguſt 11. 1693, I attended a woman, who had juſt then miſcarried of a ſmall Fœtus, quite withered, and of the length of the Middle-finger. She was then near three months gone with child, but had received, nine days before, a ſudden and terrible fright from a great clap of thunder, which the ſooner diſpoſed her to miſcarry, for that ſhe had, ſome days before, felt Pains in her Belly; towards the Region of the Womb; beſides, ſhe was a little woman, and of a very tender conſtitution, though ſanguine enough, and had miſcarried twice before of Falſe conceptions, at ſome interval of time from each other. This obliged me to order Bleeding in the Arm at the beginning of the ſecond month of her pregnancy, that I might preſerve, if poſſible, this third Conception from turning to a Falſe one, as it happened in the two preceding.

For it is to be obſerved that oftentimes the too great abundance of Blood drowns and ſuffocates the principle of life in the Conception, at the very beginning, and converts it into what is vulgarly called a Falſe conception.

This Bleeding had produced the good effect I hoped from it, and would have contributed very much to the preſervation of the child, with which the woman was really big, if the accident of the great clap of thunder had not cauſed its death, by the fright. It might however be doubted, whether the great fright alone cauſed the Miscarriage, or whether this miſfortune was owing to the Pains ſhe had felt before, near the Region of the Womb, which proceeding from the redundancy of Blood in the Veſſels of that part, might be ſigns and forerunners of that miſfortune. But it is certain that both theſe cauſes might have acted in conjunction towards producing the event. The woman, after ſhe had thus got rid of the dead Fœtus, and its After-birth, by the ſole benefit of Nature, enjoyed her health. *Mauriceau.*

Inſtances of Miſcarriages from Grief.

OBSERVATION XL.

November 14. 1685, I attended a woman of twenty-fix, who three hours before had miſcarried, at the end of ſix months of her firſt pregnancy, of a child, which ſhe had carried dead in her Womb five or ſix weeks; for ſo long ſhe had not felt it ſtir.

This woman had been very unhealthy for ſeven or eight years, after which being married, and proving with child, ſhe had been very much diſordered till the end of four months and a half, having all that time her Legs very much ſwelled. And as the child of which ſhe miſcarried at the end of ſix months had been dead ſix weeks, as I ſaid before, it had only the proportions of a child of four months and a half, which was the reaſon that Nature of herſelf expelled it with eaſe.

As ſhe had a great deal of vexation and trouble of mind, I ſuppoſe that, beſides her ſickly conſtitution of Body, theſe might alſo contribute not a little to the death of the child, which however was preſerved ſo long a time without any great decay, becauſe its Waters, which preſerved it from putrefaction, ran off but two days before the mother miſcarried of it.

The woman, notwithstanding this accident, did very well afterwards, and from a ſickly creature, as ſhe was for ſeven or eight years before marriage, grew ſound and luſty, and in a little time grew big with another male infant, of whom I happily delivered the mother at her full term, as I did of ſeveral more afterwards.

Hence we may ſuppoſe that marriage was of more efficacy in reſtoring and eſta bliſhing this woman's health, than all the remedies ſhe had ever uſed. The natural cauſe of this ſalutary event may be aſſigned to her lying-in; for by that the paſſages that ſerve to carry off the Menſtrual ſuperfluities, which were ſtraightened and obſtructed when ſhe was a maid, were enlarged and opened; whence that evacuation was much better performed after childbed than before. The ſame thing happens to many other women, who enjoy a much better ſtate of health after marriage than before. *Mauriceau.*

OBSERVATION XLI.

March 21. 1687, I delivered a young woman of twenty of a dead Fœtus, at the term of four months, it being the firſt time of her going with child, which I drew away intirely incloſed in its After-birth and Membranes.

This miſfortune was owing to the great trouble ſhe received eight days before about a theft committed by one of her domeſtics. Beſides the hurry and diſorder of ſpirits on that account, ſhe had greatly fatigued herſelf by haſtily running up and down ſtairs, in order to diſcover the thief.

The corruption of the Body of this Fœtus proved it to have been dead ever ſince that time; but the mother, notwithstanding this unhappy accident, was as well after Delivery, as if ſhe had lain in naturally of a living child at the end of the term. *Mauriceau.*

OBSERVATION XLII.

The 26th of February. 1678, I delivered a woman of a Fœtus of ſix months old. She had laboured under a Flux of Blood for the laſt fifteen days, which was moderate in the beginning, but at laſt became ſo exceſſive, that if I had not taken the child from her, which was yet alive, it would undoubtedly have periſhed with the mother, who had fainted ſeveral times, from the exceſſive Flux, occaſioned by the ſeparation of part of the After-birth, as appeared after her Delivery, by ſeveral portions of clotted Blood, which were found firmly attached to that piece of the After-birth that was ſeparated from the Womb, the other part which adhered to it having ſerved to nourish the child, which, though very weak, was yet living when I brought it away from the mother, who, by this ſeaſonable aſſiſtance, was preſerved from the great peril of dying in a few hours, had I not immediately broke the Membranes, turned the child, and extracted it by the Feet.

The husband of this woman told me, that her Flooding was owing to the great affliction ſhe had been under for the death of a gentlewoman her friend. This is not at all unlikely, becauſe it is very certain, that great ſorrow, as well as fear, is capable of producing this effect, by ſuddenly drawing the Blood in too great abundance towards the Interior parts, and ſo overcharging their Veſſels till they burſt. *Mauriceau.*

OBSERVATION XLIII.

On Monday, October the 4th, 1725, I was, about four o'clock, called upon to ſee one Mrs. Jackson, a waterman's widow at Rotherhith; her husband died the Friday before, and was buried the night before I came. She attended his corpe to the grave, by which attendance, and through ſorrow, ſhe fell into the illneſs ſhe then laboured under, which was a Flooding. Upon examination I found the Inner orifice of the Womb ſpread, and both the Feet of the Fœtus paſſed through it; ſhe was about ſix months gone with child. I judged it adviſeable to deliver her immediately; and well greaſing my Hand, I introduced my two Fore-fingers into the Outer orifice, with which I took hold of one Ankle, and pulled with all tendereſs, and the other Foot following, I was able to take hold of both Legs; the Parts were ſo tender, that the Foot of the Leg I firſt took hold of, was almoſt ſeparated at the Ankle; however, I drew the Legs on gently till the child advanced to the Shoulders; then paſſing up my Hand, I brought down the Arms on each ſide. I now endeavoured, by laying one Hand on the Breaſt, and with the other taking hold above the Shoulders, to extricate the Head; finding it ſtick there, I paſſed up my Fore-finger into the Mouth, but the child being very tender, the Jaw ſplit and gave way; ſo I endeavoured to bring it out by pulling at the Shoulders, but this would not do, the Body ſeparated from the Neck, and left the Head behind; wherefore I immediately paſſed up my Hand, and got my two Fore-fingers above the Head, and preſſing with them bent upon it, I brought it away.

I should have observed, that after the separation of the Body, the After-burden presented itself before the Head, and came away; but as I brought the Head immediately afterwards, there was no great Loss of Blood. *Giffard.*

Instances of Miscarriages from a Diarrhæa, or Dysentery.

OBSERVATION XLIV.

May 3. 1683, I attended a woman who had been a month afflicted with a Diarrhæa and Tenesmus, which had reduced her very low. She was suspected to be about five months gone with child, but two physicians who had consulted on her case being somewhat dubious, had recommended me to the patient, that they might know my opinion. I examined her in their presence, and assured them that she was really with child, though the Internal orifice of the Womb appeared to me considerably open in its Exterior part; but it was quite closed up in the Interior, which, in conjunction with other signs, made me judge that she was most certainly with child. But contrary to my opinion, which was the real truth, her midwife had assured these physicians that she was not; and another surgeon, who examined the patient after me, with as much obstinacy as ignorance espousing the sentiments of the midwife, advised her to take a Clyster with four ounces of Honey, instead of Clysters of milk, or of a simple decoction of Bran, which I had ordered for her. This Clyster immediately increased the distemper to such a degree, that she miscarried of a child six months grown, who was yet alive. But the mother, who had been extremely weakened by that distal distemper, died the second day after miscarrying, thanks to the ignorance of that surgeon, who knew no better than the midwife. *Mauriceau.*

OBSERVATION XLV.

June 9. 1683, I attended a young woman of twenty, who had just before miscarried, at the end of five months and a half, of her first Big-belly. The child lived half an hour; but the midwife could not bring away the intire After-birth, but left a third part of it in the Womb, which having quite closed itself when I came to assist, and not being to be opened without violence, obliged me to commit the expulsion to Nature, which threw off its burden by pieces half suppurated for five or six days together.

All this time I ordered Emollients to be injected into the Womb three or four times a day, as well to wash away the fetid excretions, as to promote the expulsion of the remainder of that foreign mass. This woman had for several days before been troubled with a Looseness, which was a principal cause of her miscarrying; and after she got up, was seized with a double Tertian, which held her a month, after which she recovered her health. *Mauriceau.*

From a Dysentery.

OBSERVATION XLVI.

In the year 1692, there came abundance of soldiers into this country, and brought with them a Dysentery, which spread itself in Valogne, and raged with great violence, carrying off almost all, both old and young, whom it once seized. But those of sound constitutions and the rich escaped best. It spared no sort of men from the magistrate to the peasant, except physicians, surgeons, and apothecaries, or, to speak more properly, surgeons, for we of that fraternity carry on three fourths of the medical business in this place. In October the wife of a glover, six months and a half gone with child, who had been my patient six days under this melancholy distemper, which I thought from the first day she would never get over, sent in the afternoon to tell me that she felt violent Pains, and begged that I would come to her. I went immediately, and found her in the pangs of travel, the child in its right place, the Waters formed and ready to pierce, which happened after some throes. The child soon followed, and I delivered her of her After-birth, which was very small, without any difficulty. The child after this lived two days, and the mother eight. *La Motte.*

Cause, a Dysenteric Flux.

OBSERVATION XLVII.

February 8. 1686, I attended a woman six months gone with child, who was almost reduced to extremity by a very bad Dysenteric Flux, which had tormented her for three months. As she felt extreme pains in her Belly at this instant, and voided matter like the lees of red wine diluted, which were certain marks of an inflammation and erosion of the Intestines, I told her husband she was in the utmost danger of her life; and as to what he said, that he hoped, agreeable to the sentiments of a physician who had seen his wife, that if she were delivered there would be more room to expect a recovery, I told him I was of a contrary opinion, and since her distemper was come to such a height as it now stood, I believed she would certainly die in a few days. The event justified my prediction, for the poor woman died two days after I had seen her in that condition, and on the same day

that the violence of that mortal distemper brought on a Miscarriage.

For it is to be observed, that if there be any grounds to hope that lying in will relieve the distempers under which women with child labour, it is true only with respect to those disorders which are caused by their pregnancy, and not of other distempers which have no dependance thereon; for these, instead of being lessened, or relieved by lying in, as is too often hoped, become more dangerous than they were before; because Nature, which was already embarrassed with a disease of a dangerous nature, cannot at that time well manage the evacuation of the Lochia, the suppression of which immediately causes a reflux of the humours upon the principal parts which were indisposed before. *Mauriceau.*

Instances of Miscarriages from unseasonable bleeding and purging.

OBSERVATION XLVIII.

March 15. 1689, I attended a woman four months gone with child, who, by advice of two physicians, had been blooded in the Foot in the beginning of her pregnancy, which they knew nothing of, and had afterwards taken a vast quantity of most unseasonable medicines, which having sufficiently racked her, at last forced a Miscarriage, the infant expiring as soon as born.

A few days before this unfortunate event, I visited the patient, and found her in a bad state, and labouring under a Flux of bloody Serofities, by which I knew she was in danger of miscarrying in a short time; for I assured her she was with child, notwithstanding the contrary sentiments of the two physicians, who had always ascribed the disorders caused by her pregnancy to the suppression of the Menfes, which they endeavoured to provoke by remedies not at all suited to the nature of a Big-bellied woman. But their error lay in not well considering the difference of treatment due to the different states of maid and wife under such a circumstance, which though it proved unlucky to the infant, yet I hope this example has made them wiser and more cautious. *Mauriceau.*

OBSERVATION XLIX.

A. D. 1672, June 18, I had under my care a young woman of twenty, of a very fine complexion, six or seven months gone with her first child. She had kept her bed fifteen days, labouring under Pains of the Kidneys and Belly, which at last brought on a Fever, preceded by Shiverings. For this reason the physicians who ordinarily attended her directed her bleeding no less than six times in eight days, contrary to my sentiments, who was for using that remedy with moderation, and bleeding no more than twice, which I thought sufficient to preserve her as much as possible from miscarrying, which at last was the consequence of these frequent bleedings, as I had foretold, the child dying in her two days after the Fever came upon her, preceded by Shiverings. So that the same remedy which, if used with moderation, had been beneficial, by excess brought on that mischief which it was intended to prevent. It would signify nothing here for people to affirm in confutation of my opinion, that they have known women with child blooded twelve and fifteen times, and even more, for distempers that have seized them, and yet went out their time very happily; for I shall only answer, that I have much oftener observed, that two or three unseasonable bleedings have brought on a Miscarriage. *Mauriceau.*

OBSERVATION L.

March 31. 1688, I delivered a woman, aged thirty-three, of a girl, after sixteen years barrenness, for which there was no manifest cause, except that in the second year of her marriage she proved with child, but by the prescriptions of a physician, who did not suspect she had conceived, was purged, and blooded in the Foot, though with much repugnance, after which she miscarried of a Fœtus of two or three months growth. Since that time she had taken a strong aversion to that physician, as being persuaded that her Sterility was owing to that Miscarriage, which might have altered the disposition of the Womb.

I have often known the like faults committed by other physicians, who have not been acquainted with the cases of women, and imputing those slight indispositions which accompany pregnancy to other distempers, have by their unseasonable remedies procured Abortions in married women as well as others, without considering that they might be with child. *Mauriceau.*

OBSERVATION LI.

April 1. 1693, I delivered a woman at the term of five months and a half, of an infant who had been dead a whole month; for so long she had not felt it move, that is, after the third purge she had taken by order of her physician, which had worked too violently with her.

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This woman, when she was but three months gone, had the Small-pox, of which, however, she was well cured, and felt her child move very strongly for fifteen days afterwards, till the violent working of the last purge much disordered her, and killed the infant within her, which was plain, because it had not made the least motion since that time; and because fifteen days before this Miscarriage she was seized with a great Flooding, which continuing upon her all that time, made way for the expulsion of the infant, which seemed to be no bigger than a Foetus of four months. Its Body was so corrupt, that it was quite stripped of the Epidermis, but it had no marks of the Small-pox, as I have seen in other children, whose mothers have had the Small-pox in the time of their pregnancy. The After-birth of this child was as big as that of one which comes at the full term, so that I had much ado to bring it away, because the Womb had only opened wide enough for the child; but this After-birth was not at all corrupted as the child was. The mother being thus happily delivered, was so brisk afterwards, that I believe if her physician had not unfortunately given her that third purge, on pretence of intirely evacuating the ill humours, which he supposed might remain in the Viscera after the Small-pox, though she was well cured, she would have gone out her full term, and have been the joyful mother of a living child. *Mauriceau.*

OBSERVATION LII.

The 25th of August, 1669, I attended a woman about five months gone with child, who had a continued Flux of Blood for three weeks past, but very moderate. Her Menfes before this had been regular every month, though not quite so plentiful as usual; but she had not as yet felt the child move. These were arguments to make the physician who saw her believe she was only big with a Mole, though I assured him she was really with child, telling him several examples of women I had seen, who had been delivered of living children at the usual term, notwithstanding the like accident. But this physician obstinately persisting in his opinion, ordered the woman, some days after I saw her, a purging medicine, which instead of promoting the expulsion of the Mole, as he pretended it would, made her miscarry of a child, which expired soon after. Now she might have saved her infant, had she consented to bleed in the Arm, and indulge herself in rest, as I advised. *Mauriceau.*

OBSERVATION LIII.

August 28. 1690, I attended a woman who, but an hour before, had miscarried of a little Foetus three months and a half grown, whose Heart still continued to beat.

This unlucky accident was occasioned by a purgative medicine, which she had taken the same day, by advice of her physician; who pretended to purge her Stomach of Bile, which was the cause of a Nausea, of which she complained, not considering that those disorders are the usual attendants on pregnancy. Besides, all purgatives were quite improper for a woman in her present condition, for she had then a small Flooding, which had continued on her for five or six days. So that her Big-belly, though endangered by this small Flooding, might however have been secured, and all things set to rights, had not the vigor and vitality of this little Foetus been utterly destroyed by that unlucky purge, so unseasonably prescribed by this physician, who could not believe the woman was with child, though I assured him of it, but fancied she went with a False conception, which Nature tried to expel by means of the Flooding before-mentioned.

The woman having thus miscarried of a living Foetus, the After-birth remained in the Womb, which closing immediately after expulsion, that foreign mass could not be brought away without offering too much violence to that part; and therefore the business was intrusted to Nature. But the After-birth, thus suffered to remain, three days afterwards excited a great Flooding, which threw the woman into very frequent faintings. This obliged me to bring away the foreign mass, finding the Matrix now enough dilated to do it without violence. After this the woman recovered her health by degrees, but had always a very sensible regret for not following the wholesome advice I gave her before she miscarried, which was, to use no remedy but rest, and once bleeding in the Arm, which I had ordered on account of the small Flooding she had upon her. *Mauriceau.*

OBSERVATION LIV.

July 21. 1691, I attended a woman aged 25, newly returned from Bourbon, where she had been to drink the mineral waters for a Palsy of the Right leg and thigh. This disorder was the reliicks of an Apoplectic fit, which terminated in a Palsy of the Right-side, though this too went off, except from the parts before-mentioned, where it settled itself till the woman's last lying-in, which was a year and a half before. Having tried abundance of remedies, she was at last

advised to drink the waters, and setting out with her husband, who was to conduct her to Bourbon, she became with child on the road. After this, she was extremely afflicted with convulsive Hysterics, and imagining that all her disorders were owing to the fatigues she underwent in her journey, she drank the waters very duly, had them pumped on her lame Thigh, used the Baths, bleeding in the Foot, and a multitude of other remedies, ignotantly prescribed, which at last made her miscarry of a child four months old from its Conception, though it had been dead a long time in the Womb, as appeared by its corruption.

But she had not the good fortune to be delivered; at the same time, of the After-birth, whose retention excited Convulsive motions, and Hysterics, which obliged a surgeon to attempt the bringing it away. This he indeed effected six hours after the birth, but with much difficulty, as not being very expert in such operations. The violence then used probably contributed to raise a very painful Tumour near the Left ilium, which communicated itself to the adjacent part of the Womb on the same side, which was opposite to that of the Paralytic thigh. This Tumour, which lay deep, was occasioned by a Flux of humours, which from time to time took their course towards the Left-side, the other side of the Womb, which was that of the Paralytic thigh, being no ways affected, but rather depressed than swelled.

But the principal cause of these disorders was the woman's not having her Menstrual purgations in such abundance as before she had miscarried. Since that time, which was ten months, she had been subject to a continual Fluor albus, whose Acrimony was very troublesome to her, and gave reason to fear that it proceeded from some Ulcerous disposition of the Womb. But I found no Ulcer at this time actually formed in the Womb, that was perceptible by the touch; though she had so painful a sensation above the Left-side, which was that where the Tumour was, that I imagined there was a free communication between them, and that this continual Fluor albus was nothing but a kind of purulent excretion from some Ulcer, which lodging in the Interior part of the Womb could not be sensible to the touch. As this woman took a journey to Paris on purpose that she might consult me on her indispositions, she returned to her place of residence in the country, after she had taken my advice, so that I do not know what has happened to her since; but I then thought she could not live above a year. *Mauriceau.*

Instances of the Effects of Abortive Medicines.

OBSERVATION LV.

September 20. 1682, I attended a woman, whom I found five or six weeks gone with child, though she had done all that lay in her power, for twenty days past, to make herself miscarry, with the assistance of a wicked midwife, who deserved the gallows. This wretch had given her several pernicious medicines for that purpose, and had handled her very roughly, in order to open the Womb, without being able to accomplish her wicked intention. All she could do had no other effect than to cause racking Pains all over the Belly, especially near the Region of the Womb, which was inclined to an inflammation, and even discharged a small quantity of Blood. I represented to her, that besides the horror of her crime, which I displayed before her in as strong colours as her confessor could have done, she had run the risk of murdering herself in endeavouring to destroy the fruit of her Womb. She told me that she would not have done it, if she had not thought, that the child, being neither shaped nor quickened, there could be no great harm in procuring a Miscarriage. But I convinced her that such a sentiment was very ill founded, and that it was as pernicious, as the action she had endeavoured to commit was wicked. This false persuasion, though of long standing, that the Foetus is not animated till a considerable time after Conception, has encouraged abundance of profligate women to procure themselves a discharge of the Embryo after Conception, and an Abortion in the first months of their pregnancy. Wherefore I think it would be very convenient, for avoiding so pernicious an abuse, to oblige every one to believe, what to me seems very true, that from the first day, and immediately after Conception, the Soul is actually introduced into the little speck of matter, which being no bigger than a grain of millet at its first beginning, and the matter thereof exceeding fine, must be imperceptible to the sight of any one who should dissect a woman that died, by some accident, the very day, or the day after Conception. But we see with the eyes of the Mind what we cannot discern with those of the Body, and clearly understand that the extreme minuteness, the softness, and the delicacy of that point of matter, is no obstacle to the infusion and permanence of the Soul which resides there. It is sufficient for the purpose, that this same point of matter be organized by the perfect arrangement of all the little atoms of which it is formed.

formed immediately after Conception. As to the rest, when I had convinced the woman by my reasons, and given her what advice I thought proper to secure her pregnancy, which had been very much staggered by the medicines she had taken to destroy it, I left her in a resolution, as she testified to me, of following the good counsel I had given her. But as she was unknown to me, I could not learn the event, except that eight days after I understood she was much better, and there were great hopes she would proceed with her Big-belly. *Mauriceau.*

OBSERVATION LVI.

In the month of June, 1685, I was sent for by a woman, who wanted my advice about a very great Flux of Blood she had been afflicted with for a day past, complaining also of her being at the same time extremely fatigued with a Dysenteric Flux. I was shewed a vast quantity of linen all over bloody, and abundance of clots of Blood which came from the Womb, not without racking pains of the Loins, and I was told that she voided nothing else. But when I had touched her, and found no tokens of one gone three or four months with child, as I had discovered in her upon examination at two different times before, I told her that I really believed she had voided something else besides all those clots of Blood she took care to shew me; and that I had observed her before to shew a great deal of trouble and concern when I assured her that I believed she was with child; and that she had, contrary to my advice, taken medicines to provoke a Miscarriage, which by their sharp and irritating property had drawn upon her that continual Flux of Blood, and bloody Serositics, which had held her above two months; that continuing in her evil intentions, as I supposed, she had this last time taken such violent medicines, that she had at last effectually provoked a Miscarriage; that she had not sent for me before she had accomplished her ill designs, and for fear I should be a witness of her damnable practices, had concealed the child of which she had miscarried from my sight, imagining she could persuade me, after a while, to think myself mistaken when I believed her with child, which she durst not confess, for fear her husband, who had not lain with her, as he said himself, should find out her infidelity.

This example shews us, that as there are some women who are mistaken in thinking themselves with child, so there are others who would fain deceive the physicians and surgeons, and conceal their Great-bellies to preserve their reputation. *Mauriceau.*

OBSERVATION LVII.

September 2. 1685, I attended a woman about two months gone with child, who two days before had received from a wicked midwife, who deserves to be hanged, a potion to make herself miscarry, which worked so violently with her, that she had been, as she told me, upon the seat above a hundred times, with extraordinary efforts, so as to void Blood by the Fundament. Yet, for all this, she could not bring to pass her wicked design, though she had also caused her to be bled in the Foot, three days before she gave her the potion, besides offering several violences with the Hand to the Womb, which I found very much irritated, and extremely swollen, but quite close, and in a condition which gave hopes of preserving her pregnancy, provided the patient followed the wholesome advice which I gave her, in order to mitigate those intolerable Pains which that execrable drench had brought upon her, by resting continually in bed, and by the use of milk, both by the Mouth, and by way of Clyster.

She expressed her intention to follow this good counsel, and a great regret for consenting to the wicked action of the midwife, but would not tell me her name, for fear I should bring her to punishment for her crime. Two days afterwards I attended the same woman, whom I found in a pretty good condition; all those dismal symptoms, which I had before observed in her, having ceased, and given way to the salutary directions I had given her, when I convinced her at the same time of the enormity of their crime, who, without much scruple, voluntarily make themselves miscarry in the first months of their pregnancy, erroneously imagining that the infant is not as yet animated. A mistake as pernicious as it is great; for it is certain that the Body of a Fœtus, though never so small, is intirely formed and animated from the first day of Conception, all the rest of the term serving only to strengthen it, and to give it the necessary growth. *Mauriceau.*

OBSERVATION LVIII.

July 19. 1677, I delivered a woman of twenty five, of a dead child at the term of six months, which presented the Arm. This *Abortion* she had designedly procured by taking forcing medicines some days before, with an intent by this unnatural means to hide her shame. The Flooding was so

excessive, that I verily believe she would have died without my assistance, which however she did not deserve, because of the heinousness of her crime; and though such procured *Abortions* are usually much more dangerous than those which are accidental, she at last recovered and did well, it pleasing God to spare her for this time.

Instances of Miscarriages from a Rigidity or Stricture of the Uterus.

OBSERVATION LIX.

April 23. 1691, I attended a woman who had just miscarried of a small Fœtus no bigger than a bee, which Nature had expelled of itself without any considerable accident.

This woman was supposed to be two months and a half gone with child, and this was the fifth Miscarriage she had in the space of two years, and all of them nearly at the same term.

This example shews us, that some women are as prone to miscarry as to conceive. The best advice I can give these women in order to preserve them from such frequent Miscarriages is, to abstain intirely from the marriage-bed for five or six months, that so their Womb being strengthened by so long a rest, may be the better enabled to retain the Conception, when after this they breed. It is good also to avoid going in a coach, and much more in other carriages which shake the Body more, during the time of pregnancy. It is sometimes even necessary, for the greater precaution, that they keep themselves in bed; and that they abstain from their husbands, that they might not, by too much motion, or efforts, endanger their weak and precarious pregnancy. But there are few women who can prevail upon themselves to follow this wholesome advice, so necessary oftentimes to preserve the Fruit of their Womb, and make them joyful mothers. *Mauriceau.*

OBSERVATION LX.

A lady at fifteen leagues distance from this city, whom I had always seen delivered safely, and without accident, during her pregnancy, came into this country about some family affairs with her husband. Being at this time with child, and staying in these parts longer than she expected, upon finding herself not well, she consulted me once or twice by letter, and then desired I would come to see her.

I found her as big as she usually had been before at her full term, and much more incommoded, though she was then only in the latter part of the sixth month. She had for more than fifteen days suffered continual Pains, not like those which precede Delivery, but which made her Belly seem as if it was going to open.

When she lay on her Back with her Knees elevated, her Belly appeared much swelled and very tense, and so little room was left for the Stomach, that a great part of whatever she eat was brought up again, before it could have time to digest. Besides these, she felt the child move but very little.

All these circumstances made me conclude she was big of more than one child; and that the bulk of what was contained in the Uterus, distending it to a greater degree than it could well bear, caused all her Pain and Uneasiness, which increased daily as her pregnancy advanced, and her burden augmented.

I took away some Blood, with an intent to relieve her by emptying the Vessels, and advised rest in whatever situation she should find most commodious, without confining her to any.

Eight days after this visit she sent for me again, but I could not make haste enough to come before she was delivered of two children, which lived but a few hours. The lady soon recovered, and has since lain in of several children without any accident, having only one at a time. *La Motte.*

OBSERVATION LXI.

A young woman at two leagues distance from this town, in the fifth month of her pregnancy, was seized with violent Pains, which she took for the Colic. Her mother sent for me in all haste, suspecting the disorder to be Labour, as in effect it was, for I found the child born, and alive when I arrived. As the After-birth was come away, I had nothing to do but leave her to the care of her mother, and return home.

Some little time after she was again with child, and at the term of five months miscarried a second time, but so suddenly, that they could not send to me. However she got over this Miscarriage, as easily as the first.

Being with child a third time, she was more upon her guard, and though always very regular, she now took care to avoid every thing she thought might give occasion to the former Miscarriages. I took away some Blood three times, the last of which was in the sixth month, and made her pursue an exact and relaxing regimen, which enabled her to carry her infant till the seventh month, and then she miscarried. The child lived a few days, and then died.

As she attributed her going a little longer this time than she had done before, to her regular conduct, she resolved to be yet more cautious the next time she should breed. And that she might succeed the better, as soon as she was recovered of the last Miscarriage, I took away some Blood twice, and purged her as often. I repeated Bleeding as soon as I knew she was with child, and continued to do so every month: Mean time I made her take whatever I thought capable of cooling and relaxing, not suffering her to eat so much as a toast, and forbidding her to drink almost every thing that was spirituous.

Either by this conduct, or for some other reason, to me unknown, she was enabled to support her pregnancy to the full term, when I delivered her happily of a living child. She afterwards went through a second, and a third pregnancy, with the like success.

But being again with child, and much more incommoded at the end of three months, than in the three preceding pregnancies at nine, she was at the term of six months surprised with Pains equal to those she used to feel in former Labours; and the Waters piercing the Membranes, left no room to doubt of her condition. Upon this she sent for me, and I delivered her of two children, which died soon after they were born; and then of a large Placenta common to them both. In a few days she recovered.

Since then I have delivered her many times of one single child, which she brought always to maturity without any great difficulty. *La Motte.*

REMARK.

Here we have a remarkable instance of a too great Rigidity of the Uterus, which rendered it incapable of a Dilatation above a certain degree. Hence when the bulk of the Fœtus, together with the Membranes, Placenta, and Waters, became so large as to distend the Uterus farther than it could bear without Pain, a Miscarriage immediately ensued.

But when the general habit of the Body was sufficiently relaxed by Bleeding, and a relaxing Regimen, the woman went her full time, till at last the Uterus was too suddenly distended by twins, and then she miscarried again.

This woman's case confirms the doctrine laid down by Hippocrates, who, in his *Treatises on the Diseases of Women*, represents this Rigidity of the Uterus as a frequent cause of Miscarriage. And, in his *Dissertation on the Seed*, he gives it as a reason, why the children of robust parents are often born very weak.

OBSERVATION LXII.

Instances of Miscarriages from a Scirrhus of the Placenta.

May 31. 1681, I visited a woman, aged thirty-five, of a very Atrabilious constitution, who had just miscarried at the period of six months and a half, the child dying ten or twelve days before, without receiving any hurt. She had already undergone three or four such Miscarriages, near about the same time, with the like accident, that is, about the fore-mentioned time she could no longer feel her infant move, but only some risings of the Womb, and voided a small quantity of Blood for ten or twelve days before *Abortion*.

The Placenta of this woman was all over Scirrhus, to which her Atrabilious temperament did not a little contribute. *Mauriceau.*

OBSERVATION LXIII.

February 1. 1679, I delivered a woman of a child six months and a half grown, which presented its Breech. It had been dead ten or twelve days, not having been felt by the mother all that time; and was the fifth Stillborn she had brought forth successively after that manner, without any fright or hurt, or other manifest cause, that could occasion the death of all her children in the Womb, just at the end of six months and a half, and twelve or fifteen days before she was delivered. And though during her last pregnancy she had taken all the precautions I advised her; the two principal of which were, keeping her bed, or at least her chamber, and separating from her husband, the same misfortune still attended her. But as the After-births of this woman's children were commonly all over Scirrhus, I concluded that this ill disposition, which hindered the infant from receiving sufficient nourishment, of which it had the more need when it began to grow large, was the true cause of its death, and of the Miscarriage that ensued. *Mauriceau.*

OBSERVATION LXIV.

June 20. 1686, I attended a woman, who had miscarried the day before of a child six months and a half grown, which died in the Womb, without any manifest cause, five or six days before, during which the mother had not felt it move.

As the After-birth was all over Scirrhus, and the woman, who was of a very Atrabilious complexion, had miscarried five times before this last, from the term of four or five months, to that of six or seven, I imagined, that this Scirrhus dispo-

sition of her After-birth, which appeared alike in all her other *Abortions*, and proceeded from a too Atrabilious temperament, had been the true cause of the death of all her infants; and of all the consequent Miscarriages at times when she was pretty far advanced in her pregnancy. For this Scirrhus disposition of the After-birth causing a great obstruction in all its substance, was the cause why the infant, not receiving sufficient nourishment from it in order to its support, must come by that defect to be deprived of life.

To remedy this misfortune, which had so often happened to this woman, I advised her to moisten and temper the extreme dryness, and excessive heat of her Atrabilious constitution, to use the Bath for some time before Conception, and asses-milk all the time after, with a temperate and moistening regimen, wholly to abstain from wine, and even from her husband when she knew she was with child; that so, by this regimen, she might do all that in her lay, to rectify her too Atrabilious constitution; and by that means be enabled, for the future, to carry her children from the time of Conception, to the end of the natural term, without ever miscarrying, as she has unfortunately done by all she has yet had. *Mauriceau.*

Instances of the After-birth retained, and discharged by Suppuration, &c.

OBSERVATION LXV.

The 8th of February, 1674, I and two of my fraternity were ordered to attend a woman who had miscarried four hours before of a child of three months. The After-birth, which remained behind, had occasioned a great Flooding. It was my opinion, that she ought to be delivered of it instantly, finding it possible from the opening of the Womb, which, though moderate, was sufficient for the purpose; considering also, that the Flux of Blood, by moistening the passage, facilitated the extraction. But my two colleagues, who were never the wiser for being older than myself, over-ruled my sentiments, alledging the danger of doing Violence to the Womb by that operation, which would increase the Flux, not considering that the sole cause of that Flux was the Retention of the After-birth. The term *Violence*, which they made use of, in contradicting my opinion, determined the patient for the present to commit the expulsion to Nature, as they advised her, rather than suffer me to deliver her, which I could have easily done, had she pleased, without deferring it till the next day, when she sent to me in order to do it; but the opportunity was then lost: for the Womb closing, there was no possibility of extracting the After-birth, which being thus retained, put her in danger of her life for three weeks together, by accidents which happened, as I had fore-told her, from the Suppuration of the Placenta, whose infection produced, as it usually happens on like occasions, very sharp pains about the Region of the Womb and Kidneys, a continual Fever, Hysterics, sanious and very fetid Excretions from that part, and frequent fits of Fainting during all that time. *Mauriceau.*

OBSERVATION LXVI.

April 4. 1687, I attended a woman, who was near the brink of the grave, it being the third day since she miscarried of a child of four months, whose After-birth was left intire in the Womb, for the midwife was not able to deliver her of it, because of the great difficulty she found, as she told me. Whence that foreign mass there remaining for three days, had caused a prodigious Flooding; and as Nature had not yet expelled it, and there was no hopes of bringing it away but by violence, because the Womb was quite closed, when I saw the woman, it turned at length to a most virulent putrefaction, which caused a continual high Fever, with two or three Exacerbations every day, accompanied with Faintings, and other symptoms usual on these occasions. But, for all these disorders, and a bad Diarrhœa besides, she recovered her health, after a most grievous and troublesome fit of sickness for five whole weeks. I had some years before attended the same woman, when she was extremely ill in the same manner, after another Miscarriage, where the After-birth had been likewise left behind, the midwife not being able to bring it away, and was expelled by Suppuration like this last.

But it is to be observed, that tho' those symptoms, which are caused by the Retention of the After-birth, are formidable, yet they are not so dangerous as those which might happen from an Inflammation of the Womb, by the great violence done to that part in order to bring away the After-birth by force: and as of two evils the least is to be chosen, we are obliged sometimes to trust Nature with the expulsion of those foreign masses, when they cannot be taken away without offering great violence to that part, in dilating it, when too much closed. *Mauriceau.*

OBSERVATION LXVII.

July 12. 1684, I attended a woman who was but just beginning to recover, after she had been very dangerously ill, three whole weeks, of a continual Fever, with Exacerbations, and other threatening symptoms, proceeding from the Suppuration of the After-birth left in the Womb, after she had miscarried of a child of three months; for her midwife was not able to bring it away, by reason of the difficulty she found, the Womb, as she told me, having quite closed immediately after the child came away. This obliged her to trust the expulsion of it to Nature, which she performed her usual way, by an intire Suppuration of the foreign mass, which held three weeks. For, though women, commonly, in these sorts of *Abortions*, get intirely rid of the After-birth the same day, or a few days afterwards, yet we meet with some who are obliged to Suppuration, which proceeds in a slow and tedious manner, and is always accompanied with a Fever, a great Pain of the Head, and Hysterical symptoms, with frequent Faintings, occasioned by the corruption, which is also attended with a strong Cadaverous smell. None of these symptoms cease till the Suppuration is intirely finished, which it is known to be, when the Excretions of the Womb are pure, and have wholly lost their offensive odour; as they began to appear in the woman I speak of, when I saw her, who, after she had so long laboured under all these melancholy accidents, recovered at last. *Mauriceau.*

OBSERVATION LXVIII.

April 2. 1679, I attended a woman thirty-five years old, of a very melancholy complexion, who had just miscarried of a small Fœtus of three months, quite wasted. As the Womb had only opened in proportion to the smallness of the *Abortion*, the After-birth remained behind, and could not be expelled, nor taken away, because the Womb was almost quite closed after the expulsion of that small Fœtus, and it could not be sufficiently dilated without suffering too much violence. This disposition obliged us to commit the operation to Nature, in hopes that it would bring matters to a good issue without assistance, as it frequently does in like cases, where the After-births of such small Fœtuses are expelled without any extraordinary symptom, two or three days, and sometimes nine or ten, after the Miscarriage. But this came all away by Suppuration, which lasted three weeks, during which time the woman was forced to make use of Emollient injections into the Womb, which were of service in daily cleaning and washing away all the purulent and foetid Excretions of that part, which came from the Suppuration of the retained After-birth. And to the time that the Womb was intirely delivered from that foreign and adventitious mass, which resolved itself by Suppuration, the woman was incommoded with a Fever at intervals, a great Pain in the Head, and Hysterics, which are the ordinary symptoms on such occasions, after which she enjoyed her health. *Mauriceau.*

OBSERVATION LXIX.

The same day I attended a woman, who had miscarried 27 days before of an infant of four months, a surgeon attending her, who not being able to bring away the After-birth, had trusted Nature to expel it. During its Suppuration the woman laboured under all the disorders usual on the like occasion; such as a great Weight and Pain in the Belly, a continual Fever, with several Exacerbations every day, a great Pain in the Head, with continual purulent and very foetid Excretions. In this bad state I found her, when she told me that, but two days ago, she had parted with a piece of the suppurated After-birth as big as her Little-finger. But as I found her Belly was pretty soft, and she had no Pain near the Region of the Womb, that her Fever was inconsiderable, and Respiration free enough, I thought her intirely out of danger, though her husband and all her relations were under great apprehensions of losing her, as knowing how ill she had been for a long time.

However, I gave strict orders that Injections should be made use of to wash away the purulent matter, and forbid all purgative Medicines, though her physician had very improperly prescribed a Purgative a few days after the Miscarriage, in hopes to procure the expulsion of the After-birth by that means, which, on the contrary, exciting an inflammatory disposition in the Womb, much irritated before by the residence of the foreign mass, instead of relaxing, caused it to swell, by which means it shut itself more closely than before, and was the less capable of expelling the After-birth.

Hence the Suppuration became so extraordinary long, that the patient told me some time afterwards, that she had voided bits of the After-birth for near forty days together; and after that was over, she still continued to discharge some Serosities every day till the Catamenia resumed their ordinary course, which was six weeks after my first visit.

But though this woman's Womb had been much weakened by

so long a Suppuration, it did not hinder her from conceiving and going out her full time with one of the lustiest girls I had ever seen, of which I happily delivered her in November the year following. The mother went ten days above nine months with this girl, who appeared so extraordinary large, that I had the curiosity to put her in a pair of scales, and found her to weigh above thirteen pounds, Averdupoize, without the After-birth, which was proportioned to the size of the infant. *Mauriceau.*

OBSERVATION LXX.

January 23. 1687, I attended a Woman, who, after she was thought seven months gone with child, had miscarried eight days before I saw her of a small Fœtus, all corrupted, which she shewed me, and it was no bigger than one of three months. But as the After-birth of that corrupted Fœtus was not brought away, from that time she continued to void purulent matter from the Womb, which came from the detained After-birth, that wasted by Suppuration.

The woman told me that she had reason to think herself seven months gone with child, because she had so long missed her monthly purgations; but that her Belly ceasing to rise these three or four last months, she thought no more of it; the infant probably remaining dead all that time, though Nature did not expel it till at the seventh month.

It might seem pretty difficult to believe that a dead infant can remain so long a time in the mother's Belly without being expelled, and with so little inconvenience, did we not every day see such instances, which convince us that some dead infants are preserved in the Womb a very long time, without any considerable corruption, before their Waters run off; these Waters serving, if I may so say, as a sort of Brine, to keep them from a cadaverous corruption, which immediately follows after their efflux, and obliges the Womb to expel them. Hence it was that the woman we speak of so long retained the little dead Fœtus, and yet had her health, as soon as the After-birth, which remained, as I said, in her Womb, turned to Suppuration, only taking care, as I advised her, to inject simple Barley-water three or four times a day into the Womb, to assist in cleansing that part from the foetid matter of this Suppuration, which might otherwise injure it. *Mauriceau.*

OBSERVATION LXXI.

May 28. 1686, I attended a woman, who had just then miscarried of a child three months grown, after she had been a month troubled with a Flux of reddish Serosities, which is the common forerunner of *Abortions*. But as the Womb had only opened in proportion to the Body of the child, which was very small, the After-birth being much larger, remained within; and as it could not be extracted by the Hand without too much violence, the Orifice of the Womb being shut, and there being no pressing necessity for it, I judged it the surest way to commit the expulsion to Nature, who, in her own time, freed herself by means of Suppuration, in which the After-birth came away by little and little, nothing appearing but purulent Excretions, which usually succeed the retention of these sorts of foreign masses, and so continue till the Suppuration being finished, the Excretions of the Womb become pure, without that offensive smell which those that are purulent are commonly attended with. But that the part just mentioned may receive no ill impression from the too long continuance of the corrupt matter in it, injections are every day, for ten or twelve days, to be used, as I directed in this Woman's case, in order to preserve her from any ill effects of the Suppuration, after which she did very well. *Mauriceau.*

OBSERVATION LXXII.

November 29. 1685, I attended a woman who had miscarried seven days before of a child four months grown, whose After-birth remained in the Womb, the midwife not being able to bring it away, because the Womb closed immediately after it had expelled the Fœtus, which it did with ease enough, as being a small, soft, and withered Substance. So that the Womb at that time not opening itself but just in proportion to the size of the child, the After-birth being much larger, was retained, and had no way to come off but by Suppuration, which was accompanied with a high continual Fever, with Exacerbations, a great Pain in the Head, and other frightful symptoms, which made her life despaired of. However she recovered at last, using no other means than what I advised, which was only to inject into the Womb, three or four times a day, a decoction of Barley, Agrimony, Mallows, and Marshmallows, mixed with a little Oil of Sweet Almonds, in order to dilute the infectious matter proceeding from the Suppuration of the retained After-birth, that the Womb might receive no ill Impression from the too long continuance thereof.

It often happens that the midwife, and the surgeon, to avoid being blamed for not delivering the woman of the After-birth, when she has thus miscarried, do their utmost to bring it away with the Hand; which I would advise by all means to attempt, provided the operation can be performed without violence, but not otherwise. For there is much less danger in trusting Nature with the work, than in going too rudely about it, in order to extract it from the Womb by violence, which might cause an Inflammation in that part, and so put the woman in far greater danger of her life, as I have known it sometimes happen. *Mauriceau.*

OBSERVATION LXXIII.

March 7. 1682, I attended a woman gone with child no more than two months and a half, who miscarried in my presence of a living child, that plainly moved its Legs and Arms, and even opened its Mouth for the space of half an hour. It came into the world without assistance, with a great Flooding. But as it was very small, and the Womb had only dilated itself in proportion to it, the After-birth remained behind, there being no room to bring it away; because the thickness and hardness of the Internal orifice, which was very close shut, could not bear to be stretched without too great violence, which might have brought on a very dangerous Inflammation in that part. But the Flux of Blood was so increased by this retention of the After-birth, that the poor woman had several bad Fainting fits the first day; after that it stopped a little, but only for a day or two, and then returned in a dismal manner, which it did, at several intervals, for the space of three weeks, the Womb all the while not sufficiently dilating so as to be able, of itself, to throw off its burden, nor to admit assistance to get rid of it without violence. And as it stuck all that time to the bottom of the Womb, so its sticking there was the cause that it did not at first resolve by Suppuration, as it usually does, when, being intirely loose from the Womb, it has no longer communication with it. So that the true Suppuration of the After-birth not beginning till at the end of three weeks, the patient was afterwards more than eight days in voiding it piecemeal, and consequently was a full month in getting rid of the Appendage to this diminutive Fœtus, though most women are no longer about it than three or four days, and seldom above eight. But what contributed very much to lengthen out the time was, that the living roots of this foreign mass hindered its separation from the Womb, where it stuck close, and could not be expelled without Pain, which was not a little aggravated by the straitness of the Internal orifice. In these eight days of the Suppuration, the woman, as it usually happens under such circumstances, had a Fever, with several Exacerbations, accompanied with a great Pain in the Head, and Hysterical fits.

The part being afterwards purified from the infection of the Suppuration, the woman recovered her health, having run the less risk by committing the work of Expulsion to Nature, which if I had tried by Hand, as I must have used violence, the remedy might have proved worse than the disease. It is remarkable that this little *Abort*, which I saw living half an hour, had strength enough to move its Arms and Legs, but had not the power to put forth a cry, though I plainly saw it open its Mouth several times. For *Abort*s have commonly no Voice till the end of the third month, their Lungs not having strength enough till then to push the air with an impetuosity sufficient to form a cry. *Mauriceau.*

OBSERVATION LXXIV.

A. D. 1676, I attended a woman, who two hours before had miscarried of a dead child at the term of eighteen weeks, and two thirds of the After-birth were left in the Womb. The midwife not being able to deliver her, sent to me for my assistance. But I found the Womb of this woman, who had never been with child before, so closed inwardly, and so straitly embracing the After-birth, that I judged it improper to attempt the taking it away forcibly, because the violence, I must have used, might have been more prejudicial than the disease itself. Besides, the woman was very faint, and extremely impatient. For these reasons I attempted to fetch it away, but very gently; and having taken away about half the mass, left the rest for Nature to discharge, having no inclination at that time to use farther violence, because the Internal orifice of the Womb being contracted like the neck of a bottle, so forcibly retained the foreign mass, that it was impossible at that time to get it away without putting the woman in great danger of her life. However, to assist Nature in discharging it, I ordered several Clysters, and Emollients to be three or four times injected into the Womb. These remedies did not fail of promoting the expulsion which happened the fourth day; and the woman afterwards enjoyed her health. *Mauriceau.*

Instances of Flooding with Miscarriages.

OBSERVATION LXXV.

April 4. 1675, I delivered a woman of a child that had been dead a considerable time. It seemed no bigger than a child of three months, though the Mother had gone with it near seven. She had almost continually discharged some small quantity of Blood from the Womb for four months past, having all that time laboured under Pains in the Kidneys, and dispositions to miscarry. This at length happened after a great and sudden Flux of Blood, which stopped immediately upon Delivery, and the woman recovered. The almost continual loss of Blood for four months had made that little *Abortion* of the human species like those *abortive* or untimely fruits, which never grow from the moment they are deprived of the sap of the tree that nourishes them, but grow dry, wither away, and fall off long before maturity. *Mauriceau.*

OBSERVATION LXXVI.

March 8. 1689, I delivered a woman of an infant of five months, which presented the Breech, and was alive, though the mother had, for three weeks before, continually discharged a vast quantity of Waters tinged with Blood, a sure fore-runner of *Abortion*.

For it is to be observed, that though some women are known to preserve their pregnancy, after voiding a pretty large quantity of pure Waters by the Womb, the case is otherwise when these Waters are tinged with Blood, for then it is a sure sign that the Womb begins to open considerably, and that it can no longer retain the infant, at what term soever it happens, after a great discharge of Water of this tincture. However the woman did very well, after miscarrying of this little Fœtus, which lived an hour. *Mauriceau.*

OBSERVATION LXXVII.

July 25. 1683, I attended a woman who had just then miscarried of a small Fœtus, no bigger than a bee; but the Secundines being left in the Womb, a pretty large Flux of Blood ensued, which however was not succeeded by any considerable weakness. The Womb had only opened in proportion to the size of that Fœtus, so there was no room at present for the operation; but two days afterwards, finding it in a better disposition, I took from it the foreign mass, which exactly resembled what we commonly call a False conception, and was of the bigness of a middling pullets-egg. This experiment convinced me, and confirmed me in the belief, which I always had, that all those pretended False conceptions, which come from women about the third month, were True conceptions in the beginning; and that they are, in effect, no more than little Placenta's, whose Membranes are stuffed with clots of Blood, which swell them up; that after the Waters which they contained are run off, they are all compacted into a globular form by the contraction of the Womb, and being, as it were, moulded in its cavity, and blended with those clots of Blood, and the substance of those little After-births, take the figure of a fowl's gizzard. And as we many times perceive no Fœtus in these sorts of False conceptions, because of the extreme minuteness and softness of these little *Abort*s, which lose their figure, and confound their substance with the clots of Blood, which are voided by women on those occasions; and as we see nothing come from them afterwards, but those kinds of foreign masses, we commonly take them for simple False conceptions, though they are in effect true After-births, as was that which I took from this woman, who then reckoned herself gone about two months and a half. But as she had been very much disordered all the first months of her reckoning, and especially the last fifteen days, when she voided every day bloody Serosities, and even pure Blood in small quantities, at intervals, from the Womb, here we see the cause why this diminutive Fœtus, which had for some time past withered away for want of nourishment, did not arrive at the bigness it ought to have had by the mother's reckoning. *Mauriceau.*

Miscarriages less difficult where a Flooding has preceded.

OBSERVATION LXXVIII.

March 28. 1677, I attended a woman who had just miscarried of a dead child, at the term of fourteen weeks. For three whole weeks before this accident, she had been troubled with a small Flux of Blood, which at the end was considerably increased for the space of two hours, till it brought away with it the little Fœtus as aforesaid, with the After-birth at the same time. It is to be remarked, that in these sorts of *Abortions*, the After-birth is easily expelled with the Fœtus, when the woman has, for a long time before her miscarrying, felt considerable Pains, with some loss of Blood. For these Pains help, in a great measure, to loosen the After-birth from the Womb. But it is usually otherwise when the Miscarriage comes suddenly, and almost without Pain. For the infant

infant, which is small and tender, is easily enough expelled ; but the Womb not being sufficiently open, in proportion to the bigness of the After-birth, for that reason retains it, where it continues to stick, and cannot be excluded without much Pain. *Mauriceau.*

OBSERVATION LXXIX.

October 18. 1730, A carpenter near Russel Court, in Drury lane, came to me, and desired I would go to his wife, who judged herself to be nine or ten weeks gone with child. She had for some days laboured under a Flooding, and had lost a very large quantity of Blood, so that she was very much sunk and dispirited, and had fainted several times. Upon my coming, I first felt her Pulse, which I found very low and weak ; she complained of a grinding Pain in her Back, and a forcing down and weight upon the Os tincæ ; I therefore thought it necessary to touch her, believing whatever was to come away was lodged upon, and stopped up, the Os tincæ, which might occasion those complaints. I found the Vagina and Os internum choaked up with coagulated Blood, the latter very little open, and not wide enough to admit the passing up of one Finger ; however, with the end of my Finger I felt a soft substance within, lying at the Mouth of the Womb : at that time I thought it advisable not to attempt the fetching it away, in hopes that the Os internum would sink lower, and spread wider ; and therefore I only ordered her the following draught and mixture, promising to see her again in a few hours.

Take of Plantain water two ounces,

Strong Cinnamon water half an ounce,

Liquid laudanum twelve drops,

Diacodium three drams,

Japan earth a scruple ;

Make a draught to be taken immediately.

Take of Plantain water, and the water of Oak buds, of each three ounces ;

Small Cinnamon water, and strong, of each an ounce ;

Syrup of Lemons an ounce,

Japan earth a dram ;

Take two or three spoonfuls occasionally.

About three hours after I called again, when I was informed, that the draining continued, but in a lesser quantity ; she had a Pain in the Back, and a greater weight and pressure upon the Os internum. I touched her again, and found the Os internum sunk lower, and opened wide enough to admit one Finger to pass into it, with which I felt a soft substance. This I judged to be the Placenta sunk low down, and lying at the Os tincæ ; I therefore passed one Finger up into the Uterus, where I found the aforesaid substance lying loose in the Uterus ; whereupon I thrust my Finger further up, and bending the end in the manner of a hook, over the said substance, I drew it out, upon which the Flooding, and the grinding and forcing Pains went off. I then ordered her a Cordial bolus to be taken immediately, at night, and the next morning, with three or four spoonfuls of Julap after each Bolus ; or at any other time, in case she was faint or sick. I called the next day, and found her very brisk, and free from all her former complaints ; and, that she had had no return of her Flooding from the time I brought the substance away. *Giffard.*

The author forgot to inform us what became of the Fœtus.

OBSERVATION LXXX.

August 20. 1730, I was called upon to go to a woman in Durham-yard, the wife of a porter, who, the preceding day, found (as she thought) the child to give a sudden slip, and fall lower. A few days after she was seized with a violent Flooding, and grinding Pains in her Back. I found her upon my coming very much dispirited, her Pulse low, and clear Blood continually dribbling. Upon touching, I found the Os tincæ wide enough to admit the ends of three Fingers, and therefore gave it as my opinion, that she ought to be immediately delivered, and that delays might be dangerous, since she had lost so much Blood already. There was no prospect of its stopping before both the child and Placenta were brought away, for as long as the Uterus was kept distended by them, the Mouths of the Vessels (before inoculated into the Placenta, which then wholly adhered to the Uterus, but was now in part, or wholly separated from it) would continually pour the Blood into the Womb, so that the whole mass would be exhausted, unless she was delivered. Then indeed the Womb would contract and be collapsed, by which the Mouths of the Vessels are stopped, and the Flooding generally ceases. All that were present submitted the matter intirely to my conduct ; immediately I passed up my Hand well greased into the Vagina to the Os internum, which I endeavoured to dilate with the ends of three Fingers passed into it, and soon made way for the Fourth and my Thumb ; then, by gently spreading them, I dilated it wide enough to admit my whole Hand, which I passed into the Uterus, where I first met with the Membranes ; those I

broke with the ends of my Fingers, and laid hold of a Hand, which I put aside, and went on in search of the Feet. I soon met with a Foot, and brought it out. The child was small, and the parts having been dilated by former Labours, I was not solicitous about the other foot ; and therefore taking hold of that already brought out with a soft cloth, I drew it gently towards me, at the same time advising the woman to assist by bearing strongly down ; the Hips presently followed, as also the Body and Head. The *Funis Umbilicalis* was twisted round the Neck of the child ; and upon the Head's sinking down the preceding day, the Placenta was in part, if not wholly, separated from the Uterus, which separation was occasioned by the contraction of the Navel-string. The Placenta being separated, a Flooding of course ensued. Passing my Hand, after the child was brought out, I found the burden sunk down, and partly out of the Womb, lying in the Vagina, so that I had no difficulty in bringing it away. The child was born dead, which I judged it to have been several hours, the woman not having perceived it stir all the time of her Labour. This woman was in the eighth month of her reckoning. She died about eight or nine hours after her Delivery, notwithstanding all proper applications were made use of. This, I imagine, wholly proceeded from her great loss of Blood before she was brought to bed. *Giffard.*

OBSERVATION LXXXI.

April 1. 1730, I was sent for to a poor woman in Knaves-acre, the wife of a smith, who was about six months gone with child, and had been seized with a Flooding some days before, for which her midwife had, not long before, come to consult me, when I ordered an astringent mixture to be taken three or four spoonfuls now and then, and a quieting astringent draught to be taken at night, which I ordered to be continued every night, in case her Flooding did not stop, with orders to give me an account of her the next day, at the same time telling the midwife, that in case it continued, the only means left to save her life, was to deliver her ; but as the method I ordered had in some measure the desired effect for the present, I heard nothing farther for two or three days ; but her Flooding returning again, her husband came to me, and desired I would go to her, which accordingly I did, and upon examination found the Os internum not dilated enough to admit the End of one Finger, and not easily to be dilated ; wherefore I advised a repetition of the medicines before prescribed ; and on the next day he called again to tell me, that the draining continued, but was not so violent ; however, as she became weaker, he desired I would see her ; I then found the Os internum as it was the preceding day, and as I could not dilate it with my Fingers, I advised a continuance of the mixture and draught ; on the third day the midwife sent me word, that the draining continued, but that the Os internum was dilated somewhat more than the preceding day, which gave me encouragement to hope that I might dilate it wide enough to pass my Hand and bring the Fœtus. Upon my touching, I found an opening large enough to admit the end of three Fingers, wherefore I endeavoured to dilate it with my Fingers, and stretching them wide from each other, I got in my Thumb, and afterwards my whole Hand. The first thing I met with was part of the Placenta separated from the Uterus, and passing my Hand by it, I felt the child inclosed in the Membranes, and floating in the Waters. I readily broke the Membranes with my Fingers, and passing my Hand within them, soon met with a Leg, which I drew out, and taking hold of it with a soft cloth, I gently pulled towards me, at the same time advising the woman to assist by bearing strongly down ; and by this method I presently drew out the Fœtus whole and intire : I was indeed afraid, as it was very tender, that the Limbs would have separated from the Body. The Placenta readily followed, being before in part, if not wholly, separated from the Uterus ; the Flooding stopped immediately upon the Delivery. *Giffard.*

OBSERVATION LXXXII.

January 23. 1729-30, A woman came to me about seven o'clock in the evening, desiring me to go with her to a grocer's wife in Leather-lane, near Holbourn ; the woman had miscarried about an Hour before of a Fœtus of about five months old, which had been dead for some time, and the Navel-string, being both very small and tender, broke by the midwife's endeavours to draw out the Placenta. Immediately upon my coming I passed up the two Fore-fingers of my Left-hand, and found the Placenta in part protruded out of the Os internum, and stopping up the same : I therefore took hold of the part protruded between my Fingers, and drew it gently outwards, by which method, the part remaining in the Womb, and which stopped up the Os internum, readily followed, and the Flooding stopped. This woman had for some days laboured under a Fever and violent Cough, which I judged occasioned the death of the Fœtus, and the Miscarriage afterwards.

Instances of Miscarriages from a Plethora.

May 22. 1682, I delivered a woman who was in her third month; she was of a very sanguine constitution, and I had advised her to bleed at the end of the first month, in order to preserve herself from such an accident. But she would not hearken to good counsel, but chose to follow a bad custom, which many others have, of staying till they are half gone, before they think of such a misfortune, which generally happens before the end of the third month. As the woman had a great Flux of Blood, I took from her the After-birth, of a good Finger's thickness, and the breadth of two thirds of the Palm of a Hand, though the Fœtus, which was still shut up in its Membranes, whose Waters were all run off an hour before, was no bigger than a large bee. We cannot however infer from hence, that the child had been no bigger than it was at the time of the Miscarriage; for it did not seem above twenty-five days grown; about which time it probably began to wither, its principle of life having been destroyed: and though not growing for a long time, it remained in the Womb, and preserved itself in its Waters, till this Miscarriage happened to the woman, who did mighty well afterwards. *Mauriceau.*

OBSERVATION LXXXIV.

August 22. 1685, I attended a woman who was thought to be more than three months gone with child, but had just then miscarried of a little Fœtus, wrapt up in the After-birth and its Membranes, and scarce bigger than a common fly, the whole being about the size of a pigeon's egg. The woman had, for two months past, laboured under a continual Flux of Blood, which was so great when she miscarried, that her husband thought she would have died.

As the principle of life was destroyed in this Fœtus from the beginning of the mother's pregnancy, it must have rested at the same dimensions as when deprived thereof by some accident, which might probably be the same as excited that Flux of Blood, which never ceased till Nature had discharged itself of that useless burden, after which the woman, who had suffered very much so long a time, recovered her health.

It is worth observing, that Big-bellied women are often known to be thus injured without any manifest cause, merely by their own sanguine temperament, their redundances of Blood suffocating, and, if I may so say, drowning the infant as soon as it is conceived, if not seasonably prevented by Bleeding in the Arm. *Mauriceau.*

OBSERVATION LXXXV.

July 9. 1685, I brought away an After-birth, which belonged to a small Fœtus of six weeks growth, of which the woman miscarried two hours before, and with it abundance of large clots of Blood were discharged, though she had never received the least hurt or injury, as she told me herself.

This accident may serve to prove, that Bleeding, which it is the custom to defer till after the fourth month, would be of more service in the first months, than at the end of four months and a half. For it is most certain, that the meer abundance of Blood is frequently the cause of miscarrying before the end of the third month, from which women might preserve themselves, if they took care to bleed in the first months of their pregnancy, during which the infant being very small, wants but very little Blood to nourish it. For which reason not being able in that state to dispense with all that is retained by the Suppression of the Catamenia, the Vessels of the Womb which are overloaded, open, and discharge their contents in an extraordinary manner, and thus cause those exuberant Fluxes of Blood, which almost constantly accompany this sort of Miscarriage. *Mauriceau.*

A Miscarriage from a great Swelling of the Labia.

OBSERVATION LXXXVI.

June 2. 1677, I attended a woman who had laboured fifteen days under a very great Swelling of the two Labia Pudendi, as well as of the Legs and Thighs. This was occasioned by a great load of humours deposited on those parts, and on the Womb itself, where she felt a great Pain from a moderate pressure of the Hand upon the Belly, which also was swelled big enough to give a suspicion of her being with child, though she had been without her Menfes for fourteen months, since she was delivered of her second child. Their suppression might be owing to the ill state of health she had been in, having been troubled with Fevers during the first eight months of the fourteen; or to her becoming with child upon her recovery to a good state of health, which she had enjoyed for some months past. But as she had not as yet felt any motion like that of a child, and her Breasts were not swelled, and there was no touching of her below, to examine the state of the Womb, because of the prodigious Swelling of the Labia which hindered it, I told her, that though I could not posi-

tively assure her that she was with child, which I very much suspected, I would advise her to manage herself like a Big-bellied woman; and that she might, for all that, suffer some scarifications to be made on the outside of the Labia, in order to give vent to a vast quantity of serous humours, which had caused so extraordinary a Swelling, as to endanger a Mortification. The operation was performed two days afterwards by an ordinary surgeon, and a vast quantity of water was discharged for several days, whereby the Swelling of all the parts round about was considerably abated, and some days after the woman was delivered of two children, with which she had gone about four months. One of the children was alive, the other was dead; and was probably the cause, by the ill impression its corruption made on the Womb, of an Inflammation, which communicating itself to the Exterior parts, drew on a Mortification, of which the woman died the third day, as I had with assurance foretold the day before. It is what almost instantly happens, when this sort of Outward Swelling from the Inflammatory disposition of the Inward parts grows Erysipelatous. But when they are no more than Oedematous, as it pretty often happens to women who have had many children, towards the last months of their pregnancy, they are not commonly so dangerous. *Mauriceau.*

A Miscarriage from a Quick-silver girdle.

OBSERVATION LXXXVII.

February 11. 1685, I attended a woman, who, when she was two months gone with child, had put a Quick-silver girdle round her waist, by advice of some ignorant person, to cure a simple Itch. The poisonous remedy in a few hours raised a plentiful Salivation, with so great a Swelling of all the interior parts of the Throat, that, for fear of Suffocation, or a Delirium, they were obliged, as her surgeon told me, to bleed her four times, and to give her several Purges to divert the Course of the humours downwards, not imagining she was with child. But the consequence was a plentiful Flux of Blood, which threw her into Faintings, that came one upon another, and ended at last in a Miscarriage. It is more than probable, that the Purges that were given her, as well as the repeated Bleedings before administered, were the principal and leading causes to this misfortune.

But though the patient seemed to be very weak, and almost harrassed out by such a train of accidents, when I saw her, I did not think her in danger, but could safely venture to foretell, that the great evacuation before Miscarriage, and that which ought to follow, would infallibly put a stop to the Salivation, which accordingly happened; and the woman was well afterwards. *Mauriceau.*

A Miscarriage of Twins.

OBSERVATION LXXXVIII.

October 6. 1730, I was sent for about four o'clock in the morning, to the wife of a snuff-box maker, in Dean-street, near Red-lion-square, who was, according to her calculation, about seven months gone with child; I had been with her about three months before, when she was under some apprehension of miscarrying, but by proper applications I cured her at that time; but now one Fœtus was brought away before I was sent for, and the midwife not being able to bring away the Placenta, occasioned my being sent for. I immediately would have endeavoured to pass my Hand in search of the Placenta, but the woman could not be readily persuaded to admit me, and made some struggle, until she was overcome by the persuasions of her friends, and the apprehensions of the danger she was in, should it not be brought away; so that at length she admitted me to pass my whole Hand into the Vagina, and so on to the Os internum, which I found so much contracted, that it would scarcely admit the ends of four Fingers; but having by degrees dilated the Orifice, I got my Hand into the Uterus, and found something harder than a Placenta. This proved to be another Fœtus inclosed in its Membranes, which were much distended by the Waters; I broke the Membranes immediately with the ends of my Fingers, and then putting my Hand within them, I searched for the Feet; the first part I met with was the Head, which I passed by, and went on in search of the Feet, and soon met with one Foot; this I brought out, and as I had sufficiently dilated the Os internum, the Fœtus being likewise very small, I judged I might easily draw it out by the Leg already brought down, without giving her much Pain by passing up my Hand again to fetch down the other: I therefore took hold of the Leg I had secured, and gently drew it forwards; I say gently, for had I used any force I might have torn it from the Body, the Leg being very small and tender; at the same time I advised the woman to abstain by bearing strongly down, which much contributed to the bringing out of the Hips, Body, and Head, all which soon followed; and upon passing up my Hand to fetch away the After-burdens, there being two entirely separate, I met with the burden belonging to the Fœtus just born protruded,

truded, and lying in the Vagina; this I immediately brought away; and then, repassing my Hand, I found the other lying within the Uterus, but wholly separated from it, so that I had no more difficulty in bringing away this than the former. *Giffard.*

Instances of Miscarriages without manifest cause.

OBSERVATION LXXXIX.

July 23. 1685, I attended a woman who had just before miscarried without any manifest cause, of a small infant, no bigger than a bee, inclosed in the After-birth and its Membranes, which still contained all the Waters, the whole being of the size and figure of a pullet's egg. The woman reckoned herself three months and a half gone, though what she had brought forth was no bigger than a Fœtus of a month, being hindered in its growth by some Fluxes of Blood, with which the mother was from time to time visited, almost regularly in the ordinary season of her natural purgations. From this symptom, the woman not thinking herself with child, though I had assured her of it, had neglected to keep herself quiet, and take her repose in Bed, as was necessary to preserve her Big-belly which had been indangered since these Fluxes came upon her. Nor did she take care to bleed in the Arm, as I advised her, after I knew she was with child.

Now I was certain that she had conceived, notwithstanding those evacuations, which came at the ordinary seasons, signified the contrary; for their coming at those times was merely accidental and by chance, as I observed; because after these evacuations had ceased, the ordinary signs of pregnancy continued as before, whereas they would have vanished after a genuine Menstrual purgation. *Mauriceau.*

OBSERVATION XC.

December 12. 1685, I attended a woman who, at the end of three months, according to her own reckoning, had just miscarried of a small Fœtus, which came from her without much Pain, inclosed in the After-birth and its Membranes and Waters, the whole equalling the bigness of a duck's egg. The Fœtus was no bigger than one of five or six weeks growth. The mother before she was delivered of it, had a moderate Flux of Blood for three weeks, so that being deprived of life long before Nature expelled it, a stop was then put to its growth.

As this Miscarriage had no violent cause to force it, the woman was as well afterwards as if she had lain in naturally of a child at the full term. *Mauriceau.*

OBSERVATION XCI.

January 14. 1687, I delivered a woman, aged twenty nine, at the term of five months, of a little infant alive, which presented the Feet, with a considerable Flux of Blood, and was the sixth of whom the mother had miscarried successively, not having gone a longer term with any of her children than with this, which was five months compleat, with others three months, and one of them four months and a half. But, what is extraordinary, the woman miscarried thus six times, without any injury or evident cause, and in spite of all possible precautions which she had taken to secure herself against this melancholy accident, to which she was so subject, that I delivered her of four children since, of whom she miscarried in like manner without manifest cause, two of four months, one of six months and a half, and the last of seven months, not being able to preserve any one of these Big-bellies to a longer date than the last, where the infant, though living when I laid the mother, survived but seven hours, as being, by reason of its immature birth, too early by two months, very small and very feeble, as all those infants are which are born at seven months.

This example shews how easily some women miscarry, as this woman actually did of ten children, which her unhappy Fecundity conceived only to see them all perish in the birth. She was above a middle stature, of a pretty full Habit of body, and her Complexion was sanguine and phlegmatic, which not a little contributed to the untimely relaxing and opening of the Internal orifice of her Womb, at the least agitation of Body or Mind.

I had advised her, as the best remedies against a relapse into the same misfortune, to abstain from her husband all the time of her pregnancy, to bleed in the Arm, when gone six weeks, and to repeat it every two months, and to keep herself in perfect composure of Mind and Body. But this good counsel served only to make her go a little the longer with the last children than with the first, for she went with the last, of which I delivered her, February 11. 1692, to the end of the seventh month, which lived only seven hours, as I said before. However, there is room to hope, that by continuing to follow the good counsel I have given, she may hereafter go out her full time with a child, and have a more happy lying-in with it than she has had with all the rest. *Mauriceau.*

OBSERVATION XCII.

January 17. 1688, I attended a woman, who, after a day's moderate Flux of Bood, had just voided a sort of False conception, some slight membranous fragments of which had come away the day before. This supposed False conception was of the size of a large pigeons-egg, and its figure much resembling that of the cavity of the Womb. I opened it, and found a small Fœtus in the middle, no bigger than a corn of wheat, though the mother believed herself three months gone. I knew by this that the principle of life in this Fœtus had been destroyed a short time after its Conception, whence a stop was put to its growth. *Mauriceau.*

OBSERVATION XCIII.

August 22. 1689, I delivered a woman of a small Fœtus, inclosed in the After-birth, its Membranes, and its Waters, which, to all appearance, had been dead a very long time. The woman thought herself six or seven months gone, though the little Fœtus, which was never felt to move, was no bigger than one of two months and a half, or three months at most.

When I delivered the woman, there ensued such a copious Flux of Blood, that she fell into Faintings, which might have put her in great danger of her life, had I not speedily succoured her by stopping the Flux, which ceased as soon as I had taken away this foreign mass which caused it. After this, the poor woman, who had been in a very languishing condition a long while, did very well. *Mauriceau.*

OBSERVATION XCIV.

February 29. 1690, I attended a woman, who had miscarried seven days before of a child four or five months grown, and now lay almost at the point of death. Her midwife, who was incapable of delivering her, had broke the String of the After-birth, and had very much fatigued the patient for an hour, without being able to bring away more than some pieces of the After-birth, the greatest part remaining in the Womb.

Hence extraordinary Floodings, and plenty of very foetid Excretions, accompanied with a continual high Fever, which had several Exacerbations every day, a great Tension of the Belly, Faintings, and other symptoms, of which the patient died, two days after I had seen her in this melancholy condition, as I had foretold, more from a consideration of the injury done to the Womb, when the midwife endeavoured to bring away the After-birth, than out of regard to the meer Retention of that foreign mass. For it is to be observed that there is less danger in committing the expulsion of the After-birth to Nature, than in offering too much violence to the Womb in order to force it away from thence, which always causes an Inflammation, a disease the more fatal as it is augmented by the Suppuration of the remaining part of that foreign mass. *Mauriceau.*

OBSERVATION XCV.

March 16. 1691, I delivered a woman, who had miscarried two hours before of a Fœtus of three months, which had been dead eight or ten days, as appeared by its corruption.

The midwife, for want of sufficient knowledge in her business, being incapable of bringing away the After-birth, so excessive a Flooding was excited by its Retention in the Womb, that the woman must have run a great risk of her life, if I had not speedily delivered her of it, and so put a stop to the Flooding, after which she did very well. *Mauriceau.*

OBSERVATION XCVI.

May 12. 1692, A lady sent for me to her house, to shew me a small Fœtus and its After-birth, which were all corrupted and decayed, though without any offensive smell. She asked me, of what term I supposed that small Fœtus might be, which was of the length of the Middle-finger? I answered, that, by its bigness, it did not appear to have been alive in the mother's Womb above two months, but that it might have been preserved there as long a time after its death, its Waters not being discharged before the time of travel, and perhaps longer. She then told me that it was a domestic of hers, who had miscarried that very day of this infant; and that as her husband had been absent these four months and a half, she believed, seeing the infant so small, that another man was the father. As for my part, the fear of imputing a crime to the woman, of which she might possibly be innocent, made me leave the question undecided. For I could not come at an intire certainty, by examining the Body of the Fœtus, because I had seen as small ones, whose mothers have not been delivered of them till five months after their Conception, having carried them dead two or three months, they being preserved without much corruption in their own Waters, as some sorts of fruits in a proper pickle, so that they did not exceed the size which they had arrived at when their principle of life was destroyed. *Mauriceau.*

OBSERVATION XCVII.

March 8. 1693, I delivered a woman of a small child of five months, of which she miscarried without any manifest cause, except that the After-birth began to be loosened, because the infant, who presented the Arm before the Head, with part of the Navel-string, was so intangled in the String, that the After-birth had been considerably shocked by it, as I found by several clots of black Blood which closely adhered to that side of the After-birth which was loosened from the Womb.

The child was alive two hours before I brought it away, which I knew by the beating at the Navel-string; but as the Womb was not opened enough for me to extract it at that time, without dismembring it, I was obliged to wait till it was sufficiently dilated to permit me to extract it without violence. For this purpose I ordered the woman a Clyster, which quickening her languishing Pains, contributed to the sufficient dilatation of the Orifice, and exclusion of the Fœtus, whose Waters were all run off two hours before I was called. The woman, though of a very delicate constitution, did very well after I delivered her. *Mauriceau.*

OBSERVATION XCVIII.

August 31. 1693, I delivered a woman of the After-birth of a small Fœtus of two months, of which she had miscarried three hours before without any manifest cause.

The After-birth being retained in the Womb after the expulsion of the small Fœtus, occasioned such a Flooding, that the woman had several times Fainting fits, out of which she recovered as soon as I had delivered her of that foreign mass; for the Flux then ceased, and the woman did very well. This was the eleventh child of which she had miscarried. *Mauriceau.*

OBSERVATION XCIX.

September 15. 1693, I delivered a woman of a False conception as big as a man's fist, in which I found a small Fœtus quite withered, which was no bigger than a bee, though the woman had suspected herself with child near seven months, by the signs of Conception she had upon her from the first month after her last Menstrual evacuation.

Three full months ago she had been troubled with a continual Flooding, which shewed that Nature had attempted, from the beginning of that Flooding, to clear the Womb of its contents; but failing to accomplish it had been the cause that this False conception, being so long harboured there, and not quite loose from it, had received a considerable increase, and was grown to double the ordinary bigness of those False conceptions which women very seldom exclude but in the second or third month after Conception. And as this little Fœtus, which was lodged in this great False conception, was no bigger than a Fœtus of fifteen days, I suppose that the principle of life had been destroyed in it, from the beginning, by some other cause antecedent to the Flooding. *Mauriceau.*

OBSERVATION C.

November 3. 1697, A woman of this city gone about ten weeks, or three months, with child, felt some Colic pains, which were followed by Pains in the Loins, that at last bore down upon the Uterus. As she was a woman of good understanding, she was equally sensible with me, that this unhappy disposition tended to a Miscarriage; and we were confirmed in this sentiment by a frequent inclination to make water, which obliged her to make use of the chamber-pot, before I had time for a proper examination. During this effort to make water, she perceived something fall from her, which proved to be the Waters, followed immediately by the Fœtus, which was so small, that being laid upon a paper, it was by the next morning shrivelled into the form of a thick dry Membrane.

This accident was followed by another much more dangerous, which was a violent Flooding, caused by the Retention of the little After-birth, the Navel-string of which was too small and tender, to be of any service for its extraction.

I did all that was possible to bring this After-birth away, and even proceeded to extreme violence, not regarding the advice of *Peu* and *Mauriceau*. I made use of one Finger in this operation, not being able to introduce a second, and by moving this round the Internal surface of the Uterus, I separated the Placenta from it, and extracted it, by bending the Finger, and making it serve as a blunt Hook, betwixt which and the opposite side of the Uterus I pressed the little After-birth, and brought it away at last intire, after which the Flooding immediately stopped.

The extraction of this After-birth, however little, was absolutely necessary, otherwise the woman must have perished by the Flux of Blood, which was so violent, as to make her in this little time very faint. *La Motte.*

OBSERVATION CI.

August 2. 1692, I delivered a woman six months gone with child, who laboured under a great Flooding, occasioned by the intire separation of the After-birth, which presented first. She had several times fainted, and was in great danger of losing her life in a few hours, had I not speedily taken the child from her, which was dead before through the excessive Flux of Blood, which ceased as soon as I had laid her. Wherefore I was obliged, under the doubt I was in whether the child were alive or no, to return it, that I might take it by the Feet; which I did. But the operation signified nothing to the child, who was dead before, as I said; but it was beneficial to the mother, who recovered her health afterwards.

You are to observe that on these occasions, where the After-birth presents first to the passage, you are never to expect that Nature, who is extremely debilitated by the excessive Flooding, which always attends such a disposition, should of herself expel the infant. And therefore you are, with all expedition, to take it from the mother, if you desire to save her from death, and her infant too, if it be still alive. For if they are not speedily succoured, they must both die, because of the excessive Flooding, which cannot be stopped before the Womb is intirely delivered of both the Infant and the After-birth. *Mauriceau.*

OBSERVATION CII.

December 24. 1692, I attended a woman who, four days before, had miscarried of a Fœtus of four months, but the After-birth still remained in the Womb, which had closed itself immediately after the expulsion of the child. The midwife finding herself at that time incapable of bringing it away, left it to Nature, who took care to discharge itself of it with a considerable Flooding in my presence. But as this Flooding had been excited only by the residence of that foreign mass in the Womb, it stopped as soon as Nature had expelled it, and the woman, recovering from the great weakness caused by the Flooding, enjoyed her health. *Mauriceau.*

Instances of Miscarriages from Acute Diseases.

OBSERVATION CIII.

The 1st of March, 1671, I attended a woman five months gone with child, who, after a continual Fever of three weeks, miscarried of an infant, which immediately expired, and she herself died two days after. The extreme danger she was in, was yet farther increased after her *Abortion*, as I plainly foretold the physicians who attended her, and who had flattered themselves that the evacuations of Child-bed would have mitigated the Fever, and disposed it to give way to proper medicines. Far from this, the Fever usually increases immediately after Delivery, and gains double force from the suppression of the Lochia, which almost constantly happens at that time, whence the Humours, which were the first cause of the disorder, immediately return back on the Internal parts. After this the patient has not long to live, because Nature, which is already oppressed with a distemper in its own nature dangerous, can by no means regulate and accomplish the necessary evacuation of the Lochia. For this reason, a physician who attends pregnant women during their illness ought, by all ways and means he can devise, to hinder *Abortion*, since most women, to whom that accident happens, die very soon after, especially such as have their Fever accompanied with a Desfluxion on their Breast, of which I have seen many instances resembling the case of the woman I speak of, whom I opened after her death, and found the Lungs on the Left-side all suppurated, and abundance of ferous and bloody matter on both sides the Breast, and the Liver quite dry and shrivelled. *Mauriceau.*

OBSERVATION CIV.

On the 16th of March, 1678, I delivered a woman twenty two years old of an infant six months grown, who lived but three hours. The mother had for nine days past laboured under a great Desfluxion upon her Breast, and a continual Fever, for which she was five or six times bled by advice of the physicians, who attended her every day. But though she had been delivered with much ease, after no more than two short hours travel, I was yet persuaded that her illness, which was of a mortal kind, would grow upon her after her Delivery. For in order to entertain any hopes that the mother would receive benefit or relief by this accident, as the physicians vainly assured her, it was necessary that Nature should have been very regular in the due evacuation of Child-bed, which it could not well perform, being already oppressed with another distemper. And besides, toward the second or third day after Delivery, there usually happens a reflux of Humours to the Breast, for the generation of Milk. On these accounts I might well conjecture that this lady would die, as it actually came to pass the fourth day after she had been brought to bed. For her distemper had its principal

principal seat in the Breast, where it had before made such a progress, that she began to have a Stertor from the time that I laid her. *Mauriceau.*

OBSERVATION CV.

June 19. 1685, I attended a woman who miscarried of a small child, three months grown, through the violence of a continual Fever, and was even growing delirious at the time of her miscarriage, which happened in the twelfth day of her illness. But though she was almost reduced to extremities, and the After-birth remained in the Womb, the midwife not being able to bring it away, yet she began to mend immediately upon Delivery, so that five or six hours afterwards the Fever was much decreased, and went off the next day, Nature also having in that time of itself expelled the After-birth, which remained behind.

This woman recovered contrary to my expectation; for I have often observed that it is extremely rare to see women who have a Fever, accompanied with a Defluxion on their Breast, survive these sorts of distempers. For they die, almost every one, in a few days after they are delivered in that bad condition; and I suppose that what mightily assisted this woman in such dangerous disorders was the soundness of her Lungs, which did not seem at all affected. *Mauriceau.*

OBSERVATION CVI.

February 3. 1692, I was sent for to deliver a woman who had miscarried the day before of a small Fœtus of three months. I took from the Womb a small After-birth, all hardened, which Nature could never have discharged, and whose Retention had caused so excessive a Flooding, as to throw the woman several times into very great Faintings.

As she had a small and very quick Pulse, with very great inequalities, when I delivered her, which was not intirely owing to the Fever, of which she had been ill three weeks, but also to potions of Savin and Mugwort, and other heating medicines, which were prescribed for her, in order, as it was pretended, to procure the expulsion of the After-birth, I very much doubted her recovery, though I had delivered her without using any violence. However she did well enough afterwards, the relief I gave her in ridding her Womb of that After-birth being of more service to her, than all the Diuretic and Cathartic potions she had taken, which were so far from producing the effects expected from them, that they served only to increase the Flooding yet more and more. *Mauriceau.*

OBSERVATION CVII.

July 1. 1693, I delivered a woman of a Fœtus of five months, which had been dead above twelve days, as appeared by its corruption. But the String of the Afterbirth, being very weak and rotten, broke; by which means the whole substance of the After-birth, which was very large, and as it were scirrhous, remained in the Womb, which immediately closing upon it, gave me no room to extract it till half an hour afterwards, when its Internal orifice being sufficiently relaxed to suffer an extraction without violence, I did the same with my Hand, only carrying it to the entrance of that Internal orifice, where I took hold of the Body of the After-birth which presented.

This woman, for ten or twelve days before, had laboured under a continual Fever, with Exacerbations, which had killed the child in the Womb, of which distemper, however, she had the good fortune to recover five or six days before this Miscarriage, and so escaped the great danger of life she must have been in, had the Miscarriage happened in the time of that disease, which it would not have failed to increase, as it usually happens, when Nature is weakened by so dangerous a distemper. *Mauriceau.*

OBSERVATION CVIII.

March 30. 1687, I attended a woman extremely ill, who had miscarried six days before of a dead child at the term of four months, having at that time upon her a continual Fever, with Pain in her Breast, and a Spitting of Blood. Her midwife had much ado to deliver her, and had even left a part of the After-burden in the Womb, which had no way to come off afterwards but by Suppuration, as I made appear before her physician, who had sent for me that we might consult together. But I found the patient in so bad a condition, that she could not hope to recover, and that her greatest disorder proceeded rather from the Fever, and Pain in the Breast, than from a small part of the After-birth left behind, which Nature would easily have got clear of, had it not been oppressed with the load of that pernicious distemper, which in a few days after put an end to the patient's life, as I had, with good reason, foretold.

Experience had taught me, that almost all women who have a continual Fever, with Pain in the Breast, at the time of a Miscarriage, die in a little time after, through the increase

that fatal distemper receives from the Suppression of the Lochia, which usually happens under those bad circumstances, whence all the Humours flow to the Breast, which was over-heated and disordered before, and there laying load upon load, compleat the Suffocation of the patient. *Mauriceau.*

OBSERVATION CIX.

December 8. 1681, I attended a woman, who, in the third month of her pregnancy had been seized with a considerable Flux of Blood, and had just then voided, amongst clots of Blood, a Membranous bag, of the bigness of a pullet's egg, full of water, in the middle of which I found a little Fœtus of the bigness of a very small bee, which, to all appearance, ceased to grow and live six weeks before, at which time the mother was taken with a Quartan ague; the Body of this little *Abort* remaining in the same proportion which it probably had when the violent fit of the mother's Fever deprived it of the principle of life. *Mauriceau.*

OBSERVATION CX.

June 14. 1684, I attended a woman who lay at the point of death, from a continual Fever, with a Defluxion on her Breast, which caused her to miscarry three days before, in her third month, of a small dead child, corrupted all over. When I was told that two hours after the expulsion the woman voided some Membranes mixed with clots of Blood, which the midwife and the physicians who attended her took for the After-birth, I assured the husband and the midwife, who were present, that if the patient had voided nothing else since the child came away, she was not yet delivered of the After-birth, as indeed she was not. For these small *Abort*s are always expelled before the After-birth, which frequently remains in the Womb in these kinds of Miscarriages, if it is not expelled together with the child, as it happens when it comes enveloped in its Membranes. This woman's miscarriage under a distemper in itself mortal, joined to the corruption of the After-birth remaining in the Womb, a circumstance mistaken by the physicians and the midwife, hastened her death, which happened the next day after I saw her in that desperate condition, as I foretold to her husband. *Mauriceau.*

OBSERVATION CXI.

In the year 1704, a very uncommon distemper prevailed, both in town and country, which proved mortal to most of those whom it seized; but the old, the feeble, and the poor, escaped better than the young, the vigorous, and the rich. The patients were afflicted either with violent Heat, or a continual Shivering, with an Oppression, Pain in the Side, Cough, Spitting of Blood, and Vomiting.

June 22, a lady about three months gone with child was seized with the fore-mentioned distemper, and the symptoms seemed to have come all at once as it were to overwhelm the poor patient; only instead of the Heat she had an extreme and continual Shivering. I was sensible of the danger as soon as I saw her taken with so violent a disease in the time of her pregnancy, and therefore advised her to settle her affairs. As she had the Spirit of a man in the Body of a woman, she did it with resolution. And as I never knew her guilty of the least weakness in all the times of her lying in, during which I attended her, and as she had a perfect confidence in me, I began with Bleeding, as the only remedy that could relieve her, an Emetic being forbidden on account of her pregnancy, and the violent oppression she laboured under. But the great Chiliness that seized her, had so concentrated her Blood, that the Extremities seemed to be deprived of it. I tried to recall the Heat into one of her Arms by vehement Friction; and holding under it a chafing-dish of coals, wrapped it up afterwards in towels heated very hot, till at last I found a Vein which appeared tolerably full. I opened it, and after a good deal of time, and several essays, drew from it several porringers of Blood.

I deferred a second Bleeding till the next day, in hopes that Heat would succeed that terrible Chiliness, which was the more surprising as it was Midsummer: But I got nothing by it, the Chiliness continued the same, as well as the Oppression, and the Stomach could bear no remedy because of the continual Vomiting; so that the absolute necessity I was under of relieving the patient, or suffering her to perish in this deplorable manner, determined me, notwithstanding the Lowness of the Pulse, to a Second Bleeding, whatever difficulties I might meet with, or how long soever I might be to do it, in a case so desperate as hers. In short, I resolved upon it, and made use of the same means as the day before, however inconvenient the Artificial heat might be to the sick. I made a shift this time to draw off three good porringers of Blood, which relieved the patient considerably; the Chiliness, the Cough, and the Spitting of Blood went off at the same time. There remained only a slight Pain in the Side, with some little Oppression, for the effectual removal of which I should have

have renewed the Bleeding, had she not complained of some slight Pains in the Belly and about the Kidneys. Upon this I assured her that she was going to fall in Labour, which actually came to pass an hour afterwards.

I could not choose but foresee the nature of those Pains, which, slight as they were, yet increasing every moment, made me take precautions not to be surprised; and these Pains growing stronger and quicker, I touched the patient that I might be perfectly satisfied. I found the Waters formed, which broke away at the first Pain, and the child presenting in the right posture, came away, and was about the size of a mouse. I then delivered the mother with more trouble than I had about the child. And, though this is no proper place to mention it, I take occasion to say, that the String of so small an infant cannot be supposed thick or strong, so that I was obliged to follow it to the root, and with two Fingers to separate it from the Womb, before the Inner orifice had closed up; and then brought it away.

This lady was very ill for three or four days, though her Child was gone off. The resolution with which she took the Decoctions, the Jellies, the Hippocras of water with a little wine, and generally every thing which I prescribed for her, brought on the Lochia in abundance, as though she had lain in at the full term, which succeeded so happily that all symptoms vanished, and the Miscarriage, so dreaded by us both in the beginning, was in its consequences the means of health to this lady, who in the space of six weeks was perfectly recovered. *La Motte.*

OBSERVATION CXII.

August 7. 1704, A lady about four leagues from this city, ill of a continual Fever, with an Oppression of her Lungs, Pain of her Side, and spitting of Blood, sent for me.

As I had several times delivered her before, she had a great confidence in me, and therefore conjured me not to leave her, telling me she would rely intirely on my assistance.

I began by bleeding her in the evening, and at night I directed an Emollient clyster, and as the Fever with the above-mentioned symptoms continued, I determined to repeat Bleeding in the morning. Mean time I advised her not to neglect what was necessary on the part of religion, and endeavoured to comfort her by insinuating, that as she was only about five or six months gone with child, a Miscarriage would be no great misfortune, but on the contrary might be of service with respect to her other disorders. I then continued to do what I thought proper to mitigate her Fever, and divert the Flux of Humours from her Breast, which seemed by the perseverance of the Cough, Pain of the Side, and Fever, to threaten the patient with a great deal of danger. Thus I proceeded till the fifth day, when Labour-pains began to be felt. I had not been in her chamber above a quarter of an hour before they became so considerable, as to leave no room to doubt of an approaching Miscarriage, and for this reason I examined into the state of the Uterus, and found the Waters formed and the Membranes ready to break, inasmuch that at the very next Pain the child was excluded alive.

As the Navel-string of so small a Fœtus could not be very strong, I used all my endeavours to manage it to the best advantage, that it might give me some assistance in extracting the After-birth; but I could not succeed, because the Orifice of the Uterus, as is usual in such cases, contracted itself almost to its former dimensions, immediately after the expulsion of the Fœtus, inasmuch that, notwithstanding all the care I could take, it broke upon this motion of the Uterus, though I scarcely pulled it at all. But without losing a moment, I pursued my point so closely, that I found means to introduce four Fingers into the Uterus before it had time to contract itself intirely, and with these I separated the Placenta from it, and brought it towards the Orifice, till I laid hold of it with my Thumb and a Finger, and so brought it away.

The lady was very ill all the rest of the day, but got better the next, and continued mending for three weeks, at which time she was perfectly recovered. *La Motte.*

REMARK.

La Motte, in his reflection upon this case, says, that notwithstanding the encouragement he gave this lady, a Miscarriage was the accident from which he apprehended the most danger. And that he attributed her recovery to the abundance of her purgations, which did not cease in this case, as they usually do after Miscarriages caused by an acute distemper.

As therefore the life of the patient depends upon the continuance of the Lochia, in Miscarriages of this sort, the principal attention of a physician should be directed to encourage their discharge by all possible means.

OBSERVATION CXIII.

On the 23d of September, 1678, I attended a woman, who, after two days suffering great Pains in the Loins, with a

Fever and Head-ach, miscarried of a little Fœtus about three months grown, four fingers breadth in length, and quite emaciated and withered, the After-birth being retained in the Womb, which had not been able to expel it, because the small dilatation, which that little shrunk Fœtus had made, was not sufficient for its exclusion, being of a much greater bulk. As I found the Womb just open enough to receive one Finger, and no more, I thought it more prudent to leave the expulsion to Nature, than to attempt its extraction in that condition, because the violence necessary to be used in making a sufficient dilatation of the Orifice might have injured the patient, whose Body the day after the Miscarriage appeared covered all over with the Small-pox. But the second day, a small Flux of Blood coming on with some Pains, which a little dilated the Orifice, I made the most proper use of the opportunity, and brought away the After-birth effectually. But the Small-pox, which was very malignant, and accompanied with a continual Fever, and a violent Pain in the Head and Throat, carried off the patient the ninth day after her Miscarriage; to which perhaps the too frequent Bleedings in the Arm, no fewer than ten, prescribed by a physician, her brother-in-law, contrary to my sentiment, might not a little contribute.

OBSERVATION CXIV.

In 1687, the Small-pox raged in Valognes with much more than common malignity, so as to prove mortal to the greater part of those whom it seized, sparing neither age, condition, nor sex. Among others, a woman of fashion, gone about six months with child, was attacked with this melancholy distemper, which proceeded in the most favourable way that could be desired. The Fever was moderate, the Puslules large, round, and white, so that nothing seemed wanting or wished but an end of the distemper, which will have its time. Under this favourable situation, all on a sudden the woman was seized with a Convulsion. I happened to be present, and ordered her a glass of wine, on which her Pains came on, and I delivered her in a moment of a living child, which was followed by a Convulsion, and death immediately after. *La Motte.*

OBSERVATION CXV.

August 10. 1688, I attended a woman, who had just then miscarried of a child of six months, which she had carried above six weeks dead in the Uterus. For she had not gone above four months when she was seized with the Small-pox, since which time, though well recovered of the distemper, she had not felt the infant move. Before her Miscarriage she had a moderate Flux of Blood for five or six days, as a Fore-runner of the same; but she did very well after Nature had, unassisted, expelled the dead child, which had only the proportions of one of four months and a half, about which term it died in the Womb. *Mauriceau.*

In the general account of the causes of Miscarriages, I have omitted *Longing*, which frequently occurs, though taken no notice of by the ancients, that I remember, and but little by any modern author of credit; though I have seen a few treatises wrote with a view to prove or disprove the reality of many effects attributed to it.

The accurate Hippocrates is silent on this head; Galen and Aëtius mention the word *κίσσα*, and Pliny takes notice of the distemper commonly called *Pica*, or *Picatio*, and other authors give an account of a distemper named *μαλακία*. But *κίσσα*, *μαλακία*, *Pica*, and *Picatio*, signify an inordinate desire to eat things, which are not properly the subjects of Appetite, as chalk, cinders, lime, and dirt; whereas the *Longing* of women with child is not confined to such trash; and besides, virgins who labour under Obstructions of the Menstrues, are perhaps more subject to such unaccountable Appetite, than breeding women. Upon the whole, I am acquainted with no language, except the German, that has any word limited to the signification of that affection, which in English we call *Longing*; *des envies des femmes* of the French, the *voglia*, or *donna sugliata* of the Italians, have at the same time other significations. But we must not infer from hence, that the disorder, for such I must call it, is peculiar to our own country, for we know that the women of all other nations are subject to it as well as our own.

That a disappointment of the thing *longed* for is the cause of frequent Miscarriages, it would be superfluous to endeavour to prove, since I believe there is scarcely a man concerned in the practice of any one branch of physic, who has not been a witness of it: and daily instances put the thing beyond dispute.

I know no way of preventing a Miscarriage from *Longing*, except by indulging the woman in her Appetite, if the circumstances are such as render it possible. But if from the impossibility or neglect of this, any symptoms of an impending Miscarriage should appear, it would be prudent to endeavour to

avert it, by such rest, regimen, and gentle evacuations as the case requires, according to the rules above laid down; provided the Miscarriage is not too sudden to admit of such precautions, which is often the case.

ABRABAX, or **ABRAXAS**. A magical word, comprehending the days of the year in numeral letters. *Castellus from Libanius.*

ABRACADABRA. A cabalistical or magical word, recommended by Serenus Samonicus as a cure for that species of Fever, which physicians call a *Hæmorrhæus*.

In order to have this good effect, the word must be wrote on paper, and repeated, dropping every time the last letter, so as to make it, when wrote, a kind of cone, thus :

ABRACADABRA
ABRACADABR
ABRACADAB
ABRACADA
ABRACAD
ABRACA
ABRAC
ABRA
ABR
AB
A

In this manner it is to be suspended about the Neck by a linen thread.

ABRACALAN. This is also a cabalistical word, to which the Jews attribute virtues equal to those of *Abacadabra*, and so far they are probably right. *Buxtorf.*

St. Chrysostom and St. Augustin are not pleased with these Amulets, which they look upon as idolatrous. But I would not propagate their doctrine, for fear of interfering with the sale of the famous Anodyne Necklace, the author of which has found means to make the Christians equal at least to the Heathens and Jews in point of superstition and folly.

But I must do the justice to *Abacadabra* and *Abacalan*, to say they have a meaning, which I don't find the Anodyne Necklace has; for *Schlen de Diis Syris* informs us, that the two words mentioned above express the name of a Syrian idol. This charm therefore must be intended as a sort of invocation of that pretended deity.

ABRAHAM. This patriarch is esteemed by some to have understood physic, and to have taught it the Egyptians during his residence in their country. There is no foundation for this in scripture. What has given a hint for this tradition is, that the Persian Magi make Abraham the same as Zoroaster, the founder of the Chaldee and Persian religion and philosophy. *Schulzius. Herbelot.*

ABRASA. Ulcers attended with *Abrasion* of part of the substance; or Ulcers where the Skin is so tender and lax as to be subject to *Abrasion*.

ABRASAXAS. This is another magical word, said to be borrowed from Basilides, the Egyptian, which if inscribed in a circle, is said to keep flies from coming within the circumference. *Castellus from Libanius.*

ABRASIO. Castellus explains this, Superficial exulceration of the Membranous parts, attended with a Loss of substance in very small fragments.

Thus there is said to be an *Abrasion* of the Intestines, when the Internal Membrane is ulcerated, and very small pieces of it are excluded with the Excrement.

ABRASUM. The part *abraded* from the Ulcer.

In *Abrasions* the Skin is not to be cut off, but restored to its place, and some proper medicine to be laid over it; for by this means the *abraded* skin, though turned black, is often conglutinated. To preserve the parts affected from an Inflammation, anoint them with Powder of red Sumach, mixed with Honey; or the Beard of a Bull-rush burnt, and mingled with Honey like the former. *Orb. de Abr. Curat. lib. iii. cap. 18.*

ABRATTIAN, is **ABROTANUM**, Southernwood, numbered by the Jewish writers amongst the seven species of Hyssop. *Salmasius.*

ABRIC. Sulphur.

ABROTANOIDES. A kind of Coral, or, as the botanists call it, a *Porus*, which grows in the form of *Abrotanum* on the rocks at the bottom of the sea, as Clusius, who describes it, imagines. *Ray's Hist.*

ABROTANUM. SOUTHERNWOOD, called also *Old Man*, and *Lad's Leaf*. It is said to derive its Latin name from *αβρότεον*, *sest.*

There are several sorts of this plant, but that meant by the college is the *Abrotanum mas Officinatum* Ger. 947. Emaculat. 1105. Raii Hist. 1. 371. *Abrotanum vulgare* J. B. 3. 192. *Abrotanum Chab.* 376. *Abrotanum mas vulgare* Park. 92. *Abrotanum mas angustifolium majus* C. B. 136. Tourn. Infl. 459. Boerh. Ind. A. 127. *Abrotanum mas vulgare Eufysii* Hist. Oxon. 3. 11.

Southernwood is very well known, being cultivated in most

gardens. It is a shrubby plant, which as it grows old will increase into a bush or little tree, having several brown woody twigs, or branches clothed with fine tender leaves a little like Fennel, but shorter, and of a hoary green colour underneath. The flowers grow upon the tops of the branches, and are very numerous, consisting of small naked round heads, of a yellowish green colour, in which lie small longish solid seed, or seeds, not inclosed in down. The leaves and flowers have a pleasant grateful smell, but with a little sourness. It flowers in July, the Leaves falling off from the Branches in the winter, and shooting out afresh every spring. *Miller.*

Ælian relates some singular virtues of this plant. He represents it as the gift of *Æsculapius* to mankind, and says it effectually cures difficulty of Respiration; and that it kills those monstrous worms, that sometimes grow to a prodigious length in the Intestines; but it cannot always in the last case be depended on.

Gulielmus Menens, in his treatise intitled *Vellus Aureum*, tells us, that if a Branch of *Southernwood* is laid under the pillow, it effectually preserves against those enchantments which induce Imbecillity. This I only mention as an instance of that extravagance to which a warm imagination, and a little enthusiasm, may expose men even of sense and learning.

Galen says it diminishes the cold fit of an Intermittent, if the patient is rubbed with it first before its invasion, and adds, that it kills worms.

The Leaves and Tops are in use, and the virtues attributed to them by modern authors are, that they are good against Putrefactions and Poisons, and the Bites of venomous creatures, as Scorpions and Spiders. They kill worms; and are sometimes used for the Suppression of Urine, and the Terms, and in Hysteric disorders. They are frequently put in warming and strengthening ointments. The Juice of the Leaves, as also a Lixivium of the Ashes, is highly commended against the falling of the Hair and Baldness. *Miller from Ray and Galen.*

The Tops boiled in wine or water, with an addition of sugar, are of service in difficulty of Breathing, Asthmas, Coughs, and other disorders of the Lungs.

It is also said to cure the Jaundice. *Ray. Dale. Miller.*

Matthioli recommends the dried powder of the Leaves in a Fluor albus.

The ancients used to infuse this in oil, in order to give the oil an aromatic agreeable smell.

A decoction of *Abrotanum*, in sea or salted water, is much recommended by *Heister* for stopping a Gangrene.

The second sort referred to by the College, is the

Abrotanum fœmina (*Chamaecyparissus*) Lavender Cotton, Off. and Ger. *Abrotanum fœmina vulgaris*, ordinary Lavender Cotton, Park. *Fœmina foliis teretibus*, Female *Abrotanum*, with roundish Leaves, C. B.

This is also called *Santolina*.

It is a shrubby plant, holding its Leaves all the winter. It has many woody, brittle, hoary Stalks, beset with longish, white and hoary Leaves that appear four square, and somewhat resemble the Leaves of our common Heath; of a very strong, though not unpleasant scent, and a hot and bitter taste. On the tops of the Branches stand long Stalks, each bearing a single naked Flower, made up only of a thrum of small yellow tubular five-corner'd Flosculi, without any border of Petala, standing together in a scaly Calyx. The Seed is small, longish and striated; and the Root firm, hard, and durable, divided into several fibrous Branches.

It grows naturally in Italy, and the warmer countries, but is planted with us in gardens, where it frequently serves for borders and edgings. It flowers in July and August.

The Leaves, and sometimes the Flowers are used, and are reputed to have great success in destroying Worms, the Leaves and Flowers being boiled in milk, and taken fasting. The ancients commend it as good against all sorts of poisons, and the bites and stings of venomous creatures, as likewise against Obstructions of the Liver, the Jaundice, and to promote the Menstrues, being given infused in wine. *Miller.*

Dale mentions a third sort used in medicine, thus described.

Artemisia tenuifolia, Offic. Hist. Oxon. 3. 6. *Artemisia tenuifolia seu Leptophylla*, aliis *Abrotanum*, J. B. 3. 194. *Artemisia tenuifolia seu Leptophylla*, quibusdam *Abrotanum sylvestre*, Chab. 375. *Abrotanum campestre*, Ger. 948. Emac. 110. 6. Raii Hist. 1. 371. Synop. 3. 190. C. B. Pin. 136. Park. Theat. 94. Tourn. Infl. 459. Boerh. Ind. A. 1. 27. *Abrotanum inodorum*, Schwenck. 5. Fine-leaved Mugwort.

This is sometimes substituted for the *Abrotanum mas*, and is said to mitigate Pains of the Stomach, and Nerves. *Dale.*

Miller reckons eighteen sorts of *Southernwood*, the first and last above-mentioned included.

1. *Abrotanum mas angustifolium majus*. C. B. Pin. Common Southernwood.

2. *Abrotanum mas angustifolium minus*. C. B. P. The lesser and narrower-leaved Southernwood.

3. *Abrotanum mas angustifolium majus*. C. B. P. Greater narrow-leaved Southernwood.

4. *Abrotanum latifolium inodorum*. C. B. P. Broad-leaved Southernwood without scent.

5. *Abrotanum mas angustifolium incanum*. C. B. P. Hoary narrow-leaved Southernwood.

6. *Abrotanum campestre, cauliculis albicantibus*. C. B. P. Fine-leaved wild Southernwood, with whitish Stalks.

7. *Abrotanum campestre, cauliculis rubentibus*. C. B. P. Fine-leaved wild Southernwood, with reddish Stalks.

8. *Abrotanum campestri simile Tingitanum*. H. L. Tangier Southernwood, resembling the wild sort.

9. *Abrotanum campestre incanum, Carlinæ odore*. C. B. P. Hoary Field Southernwood, with a smell like the Carline Thistle.

10. *Abrotanum humile, corymbis majoribus aureis*. H. R. Par. Dwarf Southernwood, with larger golden Flowers.

11. *Abrotanum Hispanicum, Absinthii Pontici folio*. Tourn. Spanish Southernwood, with a Pontic Wormwood Leaf.

12. *Abrotanum Hispanicum maritimum, folio crasso splendente & rigido*. Tourn. Spanish sea Southernwood, with a thick shining, stiff Leaf.

13. *Abrotanum mas ex Surinam molli hirsutia canescens*. Pluk. Almag. Hoary Male Southernwood from Surinam.

14. *Abrotanum clatius subincanum, foliis creberrimis, secundum caulem in metæ formam fastigiatis*. Pluk. Almag. Taller hoary Southernwood, with frequent Leaves gathered into a kind of pyramid.

15. *Abrotanum Orientale annuum, Absinthii minoris folio*. Tourn. Cor. Annual Eastern Southernwood, with a Leaf of the lesser Wormwood.

16. *Abrotanum Orientale, Chamæmeli folio*. Tourn. Cor. Eastern Southernwood, with a Chamomile Leaf.

17. *Abrotanum Africanum, foliis argenteis angustis, floribus spicatis capitulis copioso tomento donatis*. D. Sherard. Raii Supp. African Southernwood, with narrow silver Leaves, spiked Flowers, and very woolly Heads.

18. *Abrotanum Africanum, foliis argenteis angustis, floribus umbellatis, capitulis tomentosis*. Raii Supp. African Southernwood, with narrow Silver Leaves, umbellated Flowers, and woolly Heads.

ABROTONITES. A Wine mentioned by Dioscorides impregnated with *Abrotanum* or *Southernwood* in this manner:

Take of *Southernwood* bruised and sifted a hundred Ounces (Oυγγια, an Ounce, is eighteen Penny-weight five Grains $\frac{1}{4}$ Troy) inclose it in a linen bag, and put it into a vessel containing about seven gallons (κεραμειον) of Must.

It is good in disorders of the Stomach, Loss of Appetite, and in a Jaundice, for it is Diuretic. *Dioscorides*. l. 5. c. 62.

ABRUPTIO. The same as **ABDUCTIO**.

ABRUS. A kind of Red Phaseolus, or Kidney-bean, growing in Ægypt and the Indies. *Roy's Hist.*

ABRUS, Offic. Veslin. Obs. 25. *Phaseolus ruber Abrus vocatus*, Alp. Ægypt. 76. *Phaseolus Glycyrrhizites folio alato, Piso coccineo, atra macula notato*. Cat. Jamaic. 70. Hist. Jamaic. 1. 80. Tab. 112. *Phaseolus alatus major, Fructu coccineo, macula nigra notato*, Cornell. in Not. Hort. Mal. 8. 72. Flor. Mal. 211. *Phaseolus Indicus ruber Bontio*, Raii Hist. 1. 889. *Phaseolus secundus ruber, qui Abrus Prospero Alpino dicitur*, Bont. 136. *Phaseolus ruber Abrus vocatus, minor coccineus, nigra macula notatus* Hist. Oxon. 2. 71. *Phaseolus arborescens alatus et volubilis major Orientalis, fructu coccineo, hilo nigro notato*, Pluck. Phytog. T. 214. F. 5. *Pisum Indicum minus coccineum, aliis Abrus*, J. B. 2. 263. *Pisum Americanum coccineum vel nigrum, Abrus quibusdam*, Chab. 403. *Glycyrrhiza Indica vulgo*, Herm. Cat. 494. *Glycyrrhiza Indica siliquis & seminibus Pisi coccineis, hilo nigro notato*. Par. Bat. Prod. 337. *Glycyrrhiza vel (si mavis) Glycyrrhizæ affinis arborescens Americana, floribus ex luteo & rubro variegatis, folio acuminato, siliqua latissima*, Breyn. Prod. 2. 53. *Aechus Indicus sive Africanus*, Parkinson. Theat. 1071. *Konni*, Hort. Mal. 8. 71. *Olinda, Olida*, Herm. Mus. Zeyl. 16. **ANGOLA SEEDS**.

It is imported from both the Indies. The seeds are used; there are two sorts in the shops; one of the size of a large pea, of an ash colour, inclining to black; the other a little bigger than a common tare. Both are of a scarlet colour, with an eye of black. They are much commended for Inflammations of the Eyes, to dry up Rheums, to strengthen the Optic nerves, refresh the Spirits, disperse Cloudy vapours of the Brain, and to clear the Sight. The lesser sort is worn as an Amulet about the Necks of children. *Dale*.

ABSCEDENTIA. Decayed parts of the Body, which in a morbid state, are separated from the sound, or lose that Union which was preserved in a perfect state of health.

ABCESSIO. 'Απόρρασις. This signifies exactly the same as **ABCESSUS**.

ABCESSUS. 'Απόρρημα. The words *απόρρασις* and *απόρρημα*, used very frequently by Hippocrates, are translated by Celsus *Abcessus*, and sometimes *Pomica*. Hence the word *Abcessus*, generally used by modern authors to signify a Suppurated Phlegmon, or Inflammatory Tumour, though sometimes it signifies a Tumour of any other kind, which will not admit of discussion, as all Encysted Tumours.

These words seem originally, by their derivation, to import any sort of exclusion of morbid matter, *ἀφίσταμαι* and *ἀπόρρημι* signifying to recede and retire. Accordingly they are generally used by Hippocrates to express any critical removal of offending humours from the vital parts, either to some of the excretories for an immediate discharge, as the Glands of the Intestines, Kidneys, or Skin, whence they are eliminated by plentiful Stools, Urine, or Sweat; or to some part where they find an easy egress by the rupture of a Blood-vessel, as the Uterus, or Nose; or to some Muscular part, or Gland, whence they cannot so easily be expelled, and therefore stagnate and putrefy, and at last are separated in the form of Pus, or Matter.

Sometimes also Hippocrates means by these words the transmutation of one distemper into another, as of a Quinsy into a Peripneumony, or of a Continual fever into a Quartan. And sometimes the mutilation, or destruction, of a part by the morbid matter of a distemper fixing upon it.

Hippocrates also uses the word *ἀπόρρασις* to express the fracture, or exfoliation of a Bone, when the parts of it, which were contiguous in a state of health, recede from each other.

Paulus Ægineta seems to have limited the signification of *Abcessus* to Suppuration, by defining (*ἀπόρρημα*) *Abcessus*, a corruption of the Fleishy parts, Muscles, Veins, and Arteries.

Amongst the many significations of an *Abcessus*, I shall confine myself principally to that which is the consequence of an Inflammation, this being what surgeons usually mean by it. See **INFLAMMATION**.

When the Tumour of an Inflammation increases, as well as the Pain, Heat, and Pulsation, attending thereon; when the Fever persists obstinately, and these symptoms continue for three days, notwithstanding all endeavours for Resolution, we may expect that Matter will be formed in the part. And we may be sure that it is forming, if the patient feels frequent shivering fits, resembling the access of an Intermitting fever. *Hippocrates, Boerhaave*.

When this is the case, the intention of resolving is intirely to be laid aside; because if applications proper to resolve the Tumour are continued when resolution is no longer possible, the most fluid and volatile parts of the obstructing Humours will be dissipated, and the more gross and inactive particles will be dried and hardened, so as to prevent Suppuration, or render it difficult, and then a troublesome induration of the part will remain, or, if Glandulous, a Scirrhus will be formed. For this reason, Camphorated Spirits, as a Topic, are particularly improper; and high Cordials, when the Inflammation is Internal.

Particular regard is to be had to this caution in Inflammatory Tumours of the Breasts.

Instead therefore of persisting in the use of resolving applications, the chirurgical indications are

1st. To ripen the contained Humours, as yet somewhat crude, into a well digested Pus, or Matter, and at the same time to soften the containing Tumour, and adjacent parts, and invite the matter outwards, that when ripe, it may more readily be discharged externally, either by breaking spontaneously, or by an artificial opening.

2d. To let out the Pus or Matter when maturated, then to mundify the Ulcer, and afterwards to cicatrize and heal it.

It is to be observed, that when the Matter is discharged, the *Abcessus* loses its name, and becomes an Ulcer, which must be mundified, till it looks red at the bottom, before it can heal.

The first indication is answered by applications which stimulate and increase the heat of the part, or of the general habit, or which, at the same time that they increase the heat, mollify the Tumour, and by obstructing the Pores, confine the volatile and fluid parts, that they may not perspire thro' the Skin, and be dissipated.

For this purpose the following Gums are recommended.

Ammoniacum,
Bdellium,
Elemi,
Galbanum,
Opopanax,
Sagapenum. *Boerhaave*.

All emollient and relaxing applications contribute to this end, of which the following forms may serve for examples.

Take of Rye meal four ounces,

Of Vinegar two drams,

Of Gum galbanum, dissolved in the yolk of an egg, one ounce;

Boil them with water to a Cataplasim, to which add

Of Oil of White lillies, one ounce. Mix.

Take of green leaves of Wood-forrel four handfuls,

Of Butter unsalted one ounce;

Let them be boiled gently over the fire, adding by a little at a time

Of Balm two ounces,

Of Gum sagapenum dissolved in the Yolk of an egg four drams;

Make a Cataplasim according to art.

Take

Take of Honey boiled a little thick four ounces,
Of Onions roasted under the embers three ounces,
Of Fat figs four ounces;
Boil them with a very little Water to a Cataplasm, to which
add
Of Linseed powdered one ounce and a half. Mix.

Take of Oat-meal one ounce,
Of Linseed fresh powdered two ounces,
Of White lilly roots three ounces,
Of Flowers of marsh-mallows one ounce;
Boil them in New-milk, and add,
Of Unsalted butter two ounces;
Make a Cataplasm. *Boerhaave.*

Take of the herbs Mallows,
Marsh-mallows, } each one handful;
Wall-wort, and }
Chamomile,
Linseed, or Fœnugreek powdered, two ounces;

Boil them in Milk or Water over a slow fire to the consistence of a Cataplasm, afterwards add

Of Barm two ounces,
Gum galbanum dissolved in the Yolk of an egg one ounce,
Spread it upon a double cloth, and apply it warm to the Tumour, and repeat it very often.

Take of the Leaves of Mallows, and Brank-Ursine. each two handfuls,
Fat figs bruised, number six;
These must be boiled in the manner above-mentioned, to which add

Of Onions roasted under the embers, and Butter unsalted, each two ounces; and lastly, as much of powdered Linseed as is sufficient to make a Cataplasm.

Take of White lilly roots two ounces,
Of the herbs Wall-wort, } each one handful,
Mercury, and }
Melilot,

Fresh Figs bruised, number six;
Let these be well boiled in Water, and mixed with
Gum Ammoniacum and Sagapenum dissolved in the Yolks of eggs, and good Vinegar, each one ounce,
Linseed oil an ounce and a half;
Mix and make a Cataplasm.

Take of Wheat flower two or three handfuls,
Boil them in a sufficient quantity of Milk, to which add
Of Gum Bdellium, and Opopanax dissolved in the Yolks of eggs, each one ounce,
Of Saffron one ounce;
Make a Cataplasm. *Heister.*

Mean time the motion of the Blood must be regulated in such a manner, that the Fever may be great enough to produce heat sufficient for the formation of Matter, and at the same time not so excessive as to cause a mortification.

Here a great deal of judgment is required to regulate the Regimen, Medicines, and Topical applications; for it is not possible to specify an exact method suitable to every case that occurs. The general heat of the Body must be considered, and if it appears deficient, it must be increased by a warmer Regimen, and warmer Medicines; because a certain degree of a Fever is absolutely necessary to the formation of Matter.

But if the Fever appears already too great, it must be moderated by an opposite Regimen, and contrary Medicines.

The same regard is to be had to the actual and potential Heat of Topics.

Thus when a Tumour of this kind happens in a constitution, that is Hypochondriac, or worn down with a Quartan, or in the Breast of a woman of a lax habit, who gives suck, attended with little or no Fever, the heat of the Regimen, Medicines and Topics must be increased, in order to promote Suppuration. But if the Tumour happens in a young florid constitution, and the Fever and Heat are excessive, the Regimen and Medicines must be relaxing, and the applications emollient, without any mixture of warming ingredients.

The Small-pox will illustrate the doctrine I would inculcate in regard to *Abcesses*, where if the Fever and Heat are not sufficient to bring the Puslules to Suppuration, those little inflammatory Tumours collapse, and the Morbific matter finding no other way of being excluded, the patient dies.

On the contrary, if the Fever exceeds the proper bounds, and becomes excessive, Ichor is formed instead of Pus, and the parts under the Puslules appear livid, and mortify.

But if the Heat is neither deficient, nor redundant, the Suppuration proceeds regularly, and the patient by means thereof recovers.

Particular care must be taken that the Tumour is not opened till all the obstructing Matter, and injured Vessels are converted into Pus; otherwise that part which remains unsuppurated will

harden, and the Ulcer will discharge Ichor instead of digested Pus, when exposed to the Air.

On the other hand, it is dangerous to let the Pus remain in the Tumour after it is once perfectly formed. Because it will putrefy, and becoming acrid, corrode the adjacent parts, and form Sinusses and Fistulas, which in many parts are very difficult to cure, and oftentimes fatal. Or else when the more fluid parts are dissipated by Perspiration, or are absorbed by the Vessels opening into the *Abcess*, the remainder concreting causes an Induration of the parts, or a Scirrhus if it happens to be glandulous.

But in large Suppurations especially, it is of great importance to discharge the Pus, or Matter, when perfectly formed, or, to use the common expression, when ripe, for another reason, which is, that otherwise it will be absorbed by the Vessels, whose Orifices are already opened, and hourly enlarged by the Erosion of the confined Matter.

Hence Pus is mixed with the Blood, which is thereby infected, the consequences of which are a Hectic fever, and frequently a Metastasis, or translation of the Morbid matter, which ought to be discharged, to some of the Viscera, which last is more or less fatal, in proportion as the function of the part which receives it is necessary to health and life.

But the part most subject to receive ill impressions from the absorbed matter is the Lungs, and then the last scene of the tragedy is a Consumption, which terminates frequently in death.

The Liver also is not free from danger, being often infected by the purulent matter deposited in some part of it. However, in this case, the Pus sometimes finds a way through the Biliary ducts into the Duodenum, and is thence excluded by a purulent Diarrhoea.

Or it sometimes happens that the Matter, before it is deposited on any particular part, is by a singular happiness of Constitution determined to the Intestines, or Glands of the Kidneys, and thence discharged by Stool or Urine.

Hence appears the manner how the Matter of internal *Abcesses* is taken into the Circulation, and again separated from the Circulating fluid by the Intestinal or Renal glands.

I am sensible there are some bold enough to deny, that this Resorption of the Matter, in case of Internal *Abcesses*, is possible. But I may safely appeal to the experience of every physician in Europe, who has regarded such cases with an attention equal to the importance of his profession, for the truth of the fact.

When the Integuments of the *Abcess* and the parts adjacent are softened and relaxed by the Topics specified above, and their resistance is so far diminished, as to yield to the pressure of the included matter, which at this time tends outwards, Boerhaave recommends Emollient and Oily applications, mixed with some ingredients moderately acrid. By means of these he expects the Integuments will be rendered more thin, and less sensible, and consequently that the *Abcess* may be laid open with less pain and trouble.

The example he gives of a form is thus:

Take of old Barm two ounces,
Venice Soap scraped two drams,
Honey half an ounce,
Oil of Chamomile by infusion two drams;
Make a Cataplasm.

Much like this is that recommended by Heister.

Take of Barm three ounces,
Honey an ounce,
Venice Soap scraped half an ounce,
Oil of white Lillies, a sufficient quantity to make it into the form of a Cataplasm.

When the Tumor is grown soft and white, and the surgeon feels a fluctuation of Matter within, when he presses it with his Fingers; when the Pain, Heat, Redness, Tension and Pulsation of the Part cease, and the Fever disappears, and at the same time the Tumour rises in the form of a Cone, being attended with a sensation of weight, we may be sure the Pus is sufficiently matured, and must then immediately proceed to give it vent. But as an Aneurism is attended with some of these appearances, care must be taken not to mistake that for an *Abcess*. See ANEURISM.

Celsus thinks it the most advisable way to treat the Tumour with emollient Cataplasms till it breaks spontaneously, provided the Matter does not lie deep. For he says those *Abcesses*, which are thus left to the conduct of Nature, are less subject to leave uneasily scars.

But because the Matter when pent up may have the ill effects mentioned above, most surgical writers agree that it should be let out either by Incision, or Caustic, and of these Incision is generally preferred.

The Incision is to be made in this manner. Let the operator with one Hand press the Matter into the most prominent part of the Tumour, and with the other thrust the Incision-knife into the *Abcess*, till the Pus appearing at the Orifice, convinces him that he has penetrated far enough. Then let him elevate the Knife, and by that means enlarge the Wound; or else pass the

the point through the opposite side of the rising Cone, and then divide the intermediate Skin and Flesh, always taking care to begin the Incision at the lower part of the Cone, for the more convenient discharge of the Matter.

Mean time the operator must carefully avoid the subjacent Nerves and Blood-vessels, especially if any that are considerable are in danger; and must take care that he does not divide any Muscle transversely.

Galen, Paulus, and Fabricius ab Aquapendente agree, that the Incision should be made according to the reſtitute of the Fibres, as they expreſs it, by which they mean, that the wound ſhould be made parallel to the courſe of the Fibres of the part which lies under the Skin.

This caution is principally intended to prevent cutting a Muscle or its Tendon transversely, or dividing a Nerve or large Blood-vessel, each of which would be attended with accidents very troubleſome always, and generally irreparable. Thus the diviſion of a Blood-vessel would cauſe a great Hæmorrhage with all its inconveniencies; the diviſion of a Nerve, a Pally of the part to which it communicates ſenſation and motion; and the tranſverſe ſection of a Muscle would infallibly be followed by an utter deprivation of motion in the part it was deſtined to move.

The courſe of the Fibres is ſo various in different parts, that it is not poſſible to lay down particular rules for the direction of the Knife. The ſurgeon therefore, before he attempts making an Inciſion, ought to be perfectly well acquainted with the Anatomy of the part intended to be cut; for this alone can inſtruct him how to take his meaſures, in order to avoid the accidents mentioned above.

I have met with three inſtances, where, for want of this neceſſary knowledge, the Muscle which elevates the Supercilia has been divided transversely, the conſequence of which was, that they immediately fell down upon the Eye. This was the more inexcusable, becauſe Aquapendente, an author every ſurgeon is ſuppoſed to read, cautions particularly againſt it.

When the Inciſion is made, the ſides of the *Absceſs* may be preſſed gently with the Hand, in order to expreſs out of it all the Pus that is formed. But in ſome *Absceſſes*, where the quantity of Matter is very large, chirurgical writers adviſe to let a part of the Pus remain till the next dreſſing, for fear the patient ſhould faint when it is diſcharged all at once. But this caution is ſeldom neceſſary.

When all this is done, the Aperture muſt be conſidered as a common wound, and treated with Mundificative, Suppurative, Digefſtive, Balfamic, Detergent, and drying Applications, varied according to circumſtances, as is amply ſpecified under the article VULNUS, but without Tents, which are extremely pernicious; mean time guarding it as much as poſſible from the acceſs of the Air.

When a Cauſtic is preferred to Inciſion, it muſt be laid on that part of the Tumour, which appears to the ſurgeon moſt convenient for the diſcharge of the Matter.

Proper forms of Cauſtics, and the manner of applying them, will be ſpecified under the article CAUSTIC, which ſee.

When an *Absceſs* is already burſt, we are to be guided by the Probe where to dilate. The uſual method of opening farther is with the Probe-ſciſſars; and indeed in all *Absceſſes* the generality of Surgeons uſe the Sciſſars, after having firſt made a Puncture with a Lancet. But as the Knife operates much quicker, and with leſs violence to the Parts than Sciſſars, which ſqueeze at the ſame time that they wound, 'twill be ſparing the patient a great deal of pain to uſe the Knife, wherever it is practicable, which is in almoſt all caſes, except ſome Fiſtulas in Ano, where the Sciſſars are more convenient. The manner of opening with a Knife is by ſliding it on a Director, the groove of which prevents its being miſguided. If the Oriſce of the *Absceſs* be ſo ſmall as not to admit the Director, or the Blade of the Sciſſars, it muſt be enlarged by a piece of a Sponge-tent, which is made by dipping a dry bit of Sponge in melted Wax, and immediately ſqueezing as much out of it again as poſſible between two pieces of tile or marble; the effect of which is, that the looſe Sponge being compreſſed into a ſmall compaſs, when any of it is introduced into the Oriſce of an *Absceſs*, the Heat of the Part melts down the remaining Wax that holds it together, and the Sponge ſucking up the moiſture of the *Absceſs* expands, and in expanding opens the Oriſce wider, and by degrees, ſo as to give very little pain. *Sharp.*

If during the treatment of an *Absceſs* the patient ſleeps well, and breathes eaſily; if he has a tolerable Appetite, and little or no Thirſt; if the Fever, which accompanied the formation of Pus, diſappears; if the Pus diſcharged is white, of an equal conſiſtence, and not ſœtid, from theſe circumſtances we may draw a favourable preſage.

On the contrary, want of Sleep, difficulty in Breathing, Thirſt, Inappetency, or loathing of Food, a Fever, Pus that is black, of an unequal conſiſtence, and ſœtid, eruptions of Blood, a generation of ſpongy Fleſh, or a Calloſity of the Lips of the wound before Incarnation is completed, are eſteemed very bad ſymptoms. But Paintings either during the dreſſings, or afterwards, are ſtill worſe.

Some regard alſo muſt be had to the original diſtemper, of which the *Absceſs* is as a Criſis; for if that diſappears on a ſudden, and the Tumour immediately follows, or if it continues after the diſcharge of the Pus, danger is in both theſe caſes to be apprehended. *Ceſus.*

To this general account of *Absceſſes* I ſhall add the opinions of ſome of the ancients, and the chirurgical writers of our own country, that I may omit nothing which may tend to the information of thoſe whoſe intereſt or inclination it may be to underſtand this ſubject. Some repetitions of what has been already taken notice of are unavoidable; and may poſſibly have their uſe, as contributing to the confirmation; or farther illuſtration of the doctrine already advanced.

Suppuration is an effect of many Diſtempers. If a long Fever without Pain continues without manifeſt cauſe; the Diſeaſe bends its force to ſome particular part, I mean in young perſons; for in the aged it generally turns to a Quartan. A Suppuration happens in like manner, when a Hardneſs and Pain in the Præcordia fail to carry off the patient before the twentieth day, and there is no Hæmorrhage from the Noſtrils, eſpecially in the younger ſort; but Dimneſs of Sight, and a Pain in the Head, were among the firſt ſymptoms. In this caſe the *Absceſs* forms itſelf in ſome of the lower parts. But when there is a ſoft Tumour of the Præcordia, which does not go off within ſixty days, the Fever continuing all that while, expect an *Absceſs* in the Upper parts, which, if there was no Hæmorrhage from the Noſtrils at the very beginning, will break out about the Ears. And ſince almoſt all inveterate Tumours tend to Suppuration, a Tumour of the Præcordia inclines that way more than one in the Belly, as does a Tumour above the Navel more than one below it. If there be alſo a ſenſe of Laſſitude in a Fever, there is an *Absceſs* forming in ſome of the Joints, or in the Jaws. Sometimes a thin crude Urine continues ſo long, till other ſalutary ſigns ſupervene; in which caſe there will be an *Absceſs* below the Septum tranſverſum [Midriff] which the Greeks call διάφραγμα [the Diaphragm]. Pain in the Lungs, which cannot be alleviated by Spitting, Cupping, Bleeding, or Regimen, ſometimes excites *Absceſſes*, [Vomicæ] about the twentieth, thirtieth, or fortieth day; or, though but ſeldom, about the ſixtieth, counting from the day when the patient began to be feveriſh, or ſhivering, or felt a heavineſs in that part. But theſe *Absceſſes* riſe ſometimes in the Lungs, ſometimes on the Ribs. The Suppuration excites a Pain and Inflammation of the part which it affects. A greater heat is felt in that place than elſewhere, and the patient in lying on it fancies he lays a weight upon it.

A Suppuration before it comes in ſight may be thus diſcovered: if the Fever does not leave the patient, but remits by day, and increaſes in the night, much Sweat ariſes, there is a deſire to cough, but little or nothing ſpit out; the Eyes are hollow; the Cheeks red, the Veins under the Tongue look white, the Nails of the Fingers are crooked; the Fingers, eſpecially the tops of them, burn, the Feet ſwell, there is a difficulty of Breathing, with a Nauſea, and Puſtles ariſe all over the Body. But if the Pain and Cough, with the difficulty of Breathing, afflicted the patient from the beginning, the *Absceſs* will be formed on, before, or about the twentieth day; if theſe ſymptoms appeared later, they will of neceſſity increaſe, but the later they came, the ſlower will be their Solution. When the diſtemper is very violent, the Feet with the Toes and their Nails uſe to turn black; in which caſe, if the patient eſcapes from death, yet his Feet mortify. *Ceſus, lib. ii. cap. 7.*

ABSCESSSES in the URETHRA.

Small *Absceſſes* in the Urinary paſſage, called by the Greeks, φούρα, are healed by the evacuation of Pus from that part. *Ceſus, lib. ii. cap. 8.*

AN ABSCESS of the LUNGS.

Such as labour under a Peripneumony, attended with a collection of Phlegm, which is not diſcuſſed, ſurvive; but after the diſtemper has ſpent its rage, are afflicted with an Empyema, or *Absceſs* of the Lungs. Now when this comes to perfect Maturation, it requires not ſo much Care and Pains to break and evacuate it, as one that is ſeated in the ſolid parts of the Body; for the Pus is eaſily expelled, being more readily diffuſed through the thin Veſicles, than through the Habit of the Body. For the Lungs are a ſoft and fine ſubſtance, and full of pores like a ſponge, and can never be hurt by moiſture, but propels it from narrower to ſtill wider paſſages, till it comes at laſt to the Trachea. The circulation of Liquids is not difficult, and the Pus is a flexible lubricous ſubſtance, and forwarded in its Expulſion by Reſpiration. The patients generally recover, except perhaps one here and there, who is ſuffocated by the ſudden Eruption and Redundancy of the Pus, which ſtops the Trachea, and intercepts the air; though ſome die lingering of a Conſumption or Empyema. The Pus in this caſe is white and frothy, mixt with Spittle, ſometimes of an aſh colour, or blackiſh. Sometimes when there is a great Exulceration, and the *Absceſs* is very deep, a ſmall branch of the Aſpera Arteria, and with it ſome fragments of the Lungs themſelves are expelled by Coughing. The patient is hoarſe,

breathes short, speaks in a deep tone; the Thorax is enlarged, yet seems too narrow for the redundant Phlegm; the Black of the Eye is shining, and the White of an extreme whiteness as if it was fat; the Cheeks are red, and the Veins of the Face prominent. What is real matter of admiration in this case is, that the tone of the Nerves as far exceeds the Habit of the Body, as it is itself surpassed by the vigor and alacrity of the Spirits. *Arctæus περί αἰσίων καὶ σπληνὸς χροίων παθόν. Lib. i. cap. 10.*

AN ABSCESS OF THE LIVER.

If the Liver be affected with an Inflammation, and the Matter be converted into Pus, the Pain extends to the Throat, and extremity of the Shoulder. For the Liver by its weight draws the Diaphragm, by which it is suspended; and the Diaphragm draws down with it the Membrane that lines the Ribs, because it is connected to it, which Membrane is known to reach as far as the Throat, and Top of the Shoulder; and all these parts together are forced downwards. While the Suppuration goes on, a burning Heat, with Shiverings, and a dry but not very frequent Cough afflicts the patients, who become of a green herbaceous colour, or, if inclined to a higher degree of the Jaundice, somewhat pale, and their Sleep is not altogether free from troublesome dreams; they preserve their senses, unless perhaps some sudden cause makes them delirious for a time, from which they soon recover. A Tumour arises under the Paps, or the Ribs, which has been often mistaken for a Tumour of the Peritonæum. If the Tumour be under the Bastard-ribs, the Liver is painful if touched, and swells, being full of Humours. If these appearances are not limited to the Hypochondrium, it is a sign that the Tumour is in the Peritonæum; the distinction is easy; for in touching the place, after you have carried your Hand over the Lobes of the Liver, you meet with nothing further but the Vacuities of the Abdomen. But the Hardness of the Peritonæum is not circumscribed, and the Limits of its progress are not manifest. See what is said about the Distinction of these Tumours under ABDOMEN.

If the Abscess be formed in the inward parts, Nature is by far the best physician, by diverting the Pus to the Intestines, or the Bladder; the latter of which is much the safer way. But if it tends outwardly, it is not safe to neglect Incision, for want of which the Liver is corroded by the Pus, and death soon follows. If you venture on Incision, the patient is in danger of being suddenly carried off by an Hemorrhage, which from the Liver is not to be stopped. But if you find it necessary to make a Perforation, intrude a red-hot iron as far as the Pus, which will perform the operations of Incision and Cauterising at the same time. And if the patient has the good fortune to recover, the Pus will be white, ripe, uniform, inodorous, extraordinary thick; the Fever and other symptoms will be much alleviated, and perfect health be restored without much trouble. But if the Pus be discharged into the Intestines, the Excrements are first aqueous, then like Water in which raw Flesh has been washed; after this, like those which are voided in a Dysentery, accompanied with Exulceration of the Intestines. Sometimes concretion Blood comes away; sometimes yellow Bile, deeply tinged, or porraceous, and at last, when death is at hand, black.

But if the Tumor does not come to Suppuration, an offensive Smell attends the Excrements, as if they were putresced; the food passes through the Body crude and indigested, because of the weakness of the Stomach and Intestines; for the Liver, under so great a disorder, is incapable of giving it a second Concoction. Some patients are much afflicted with a sharp corroding Heat, and grow worse every day. There is a Colliquation of the Flesh, a small Pulse, with a difficulty of Breathing, and death is not far off. Some recover of the Dysentery and the Abscess, and afterwards fall into a Dropsy. But if all these symptoms remit, and the Pus that comes off by Stool is white, equal, uniform, void of Smell, and the Food is digested, there is good hope of the patient. But the best Crisis of the distemper is by Urine, for by this way the Pus goes off most safely and insensibly. *Arctæus περί αἰσίων καὶ σπληνὸς χροίων παθόν, lib. i. cap. 13.*

ABSCESS OF THE SPLEEN.

The Spleen is very subject to a chronic Distemper called a Schirrhus, but is seldom affected with a Suppuration. In the former case it is hard, and resisting to the touch, like a stone; but under this latter disorder it is softer, and at its most eminent part, where the Pus gathers, yields to the touch; though in those parts where there is no Pus it is hard, and resists. Sometimes the whole Spleen hangs loose in the Belly, and may be moved this way or that way, as long as it is small enough, and has room for Fluctuation. The Nausea and Anxiety are most grievous when the Abscess is ready to break.

This distemper, in its progress, is generally accompanied with a Fever, Pain and Shiverings; though sometimes the Heats are but gentle, and without the other symptoms, which is the reason why an Abscess in the Spleen sometimes escapes our notice; for it is but a slender part, and void of sense, even in its sound state.

Persons afflicted with an Abscess of the Spleen swell, and overflow with Moisture, as if they were in a Dropsy. They are all over of a black colour mixt with green, are restless, and fetch their Breath heavily, as if they were oppressed with a load at their Breasts; for this disorder is very dangerous. Their Belly even to the Upper region is inflated with a gross Vapour, moist only in appearance. They have great inclinations to cough, but expectorate only a little dry Matter. If they feel a motion downwards, the Fæces are watery, but the patient is relieved by it at first; but if the Stools increase, he finds himself indeed extenuated, but however relieved by it.

If the Abscess comes to break, there issues from it not pure and digested Pus, but a whitish, or ash-colour'd, and sometimes a fæulent, or livid kind of Matter is discharged. And if the Abscess lie deep, a black sort of Humour, together with some of the Juice of the tabid Spleen, are evacuated; from some, whole pieces of that Bowel come away; for the Spleen is of a dissoluble nature. If the Ulcer continues a long time without healing, an intire loss of Appetite comes on, with a Cachexy: the sick person is bloated, looks dismal: there arise all over the Body, especially in the Legs, round, hollow, livid, foul Ulcers, which are difficult to cure; and the patient finds no remedy for his evils but death. *Arctæus περί αἰσίων καὶ σπληνὸς χροίων παθόν. lib. i. cap. 14.*

In Abscesses, if there appears no probable way to hinder their breaking, anoint them with Bread boiled in Hydrekæum [a Mixture of Water and Oil] or apply to the place Barley-meal prepared after the same manner, and foment it with a Decoction of the Root of Marsh-mallows. When the Tumour is with difficulty brought to a Suppuration, and no less difficult to discuss, a Cataplasm of dried Figs is to be used. You must take the fattest and sweetest Figs, and boil them in Water, till it become of the thickness of fine Honey, sometimes adding Barley-meal, and sometimes fine Wheaten bread. If the Discussion of the Tumour do not proceed so well as it ought, boil Hyssop, or Origanum with your Figs, and, for more efficacy, put Salt in your Decoction; but great care is to be taken that, while you make use of vehement Dryers, you do not render the part callous. If any such thing appear, boil the Roots of Wild cucumber, Marsh-mallows, or Bryony in Water, or, which is more effectual, and a more powerful Digestive, the Root of the Dracunculus. Boil this Root sometimes by itself, sometimes with Figs, adding some Meal and Fat. Maidenhair also is a Digestive, and so is Oil of Dill, which also maturates crude Humours, and Tumours of indigested Matter. Pitch, especially the liquid sort, added as an ingredient in Cataplasms, digests all crude and hard Tumours.

Here follows a compounded Medicine, which cures Abscesses where the Matter is concocted, without any trouble, bringing away the Pus in the dressings, and perfectly digests them when they are crude: Take of the Lapis pyrites, and Ammoniac, of each twelve drams; of Bean-meal six drams; make them into a Plaister, with Liquid Rosine, and spread it on Leather, and let it stick to the place till it falls off of itself. But this medicine must be prepared not long before it is used, because it soon grows dry. *Oribas. de Morb. Curat. lib. iii. cap. 43. Paulus Ægineta, lib. iv. cap. 18.*

ABSCESS OF THE KIDNEYS AND BLADDER.

An Abscess of the Reins, or Kidneys, is attended with Pains about the Iliac, and unusual Shiverings at Intervals, with an anomalous Fever. The digested Pus which is voided by Urine plainly indicates an Ulcer, that requires speedy help, without which it will be difficult to cure. Ulcers in the Kidneys are to be distinguished from those in the Bladder by the Situation, Action, and Properties of their Substance and Faculties. First by the Situation; for when the Bladder is affected, the Pain is felt in the Pubes, and the Bottom of the Belly; but when the Kidneys suffer, the Pain lies in the backpart of the Loins. Secondly, by their Action, as thus: When the cause of the disease lies in the Bladder, there is a difficulty or total suppression of Urine; but when the Kidneys are in fault, the Urine passes off freely. Thirdly, by the Properties of the Body; as for instance, fibrous pieces of Flesh are voided from the Kidneys, but Membranous scales come off from an ulcerated Bladder. Lastly, they are distinguished by their Faculties. A violent Pain is felt in the Bladder, when that is exulcerated; but when the Kidneys are thus affected, there is a dull Pain of the part, accompanied with the sense of a weight on the Loins. Sometimes the Ureters are ulcerated, and Pus and Blood are voided with the Urine; for these are seated between the Reins and the Bladder; but if the Pudendum be ulcerated, Pus and Blood come away unmixed with the Urine.

FOR ABSCESS OF THE REINS AND BLADDER.

Take Linseed, the Seeds of Cucumber, and of white Poppy, Tragacanth, of each eight drams, of Amylum four drams; make them into Troches.

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For **ULCERS** of the **BLADDER**, attended with an **INFLAMMATION**.

Take twenty Pine-kernels, forty Seeds of Garden Cucumbers, of Amylum, Spikenard, each a dram, Seed of Smallage five drams. Let the Spikenard and Smallage be boiled in a pint of Water, and one sixth of a pint of the Decoction be mixed with the beforementioned ingredients.

For an **HÆMORRHAGE** from the **BLADDER**.

Take of Scissile Alum, one dram, of Tragacanth eight drams, of Gum Arabic two scruples and a half. Administer them in Passum. *Oribas. Synopsis. lib. ix. cap. 27.*

An **ABSCESS** of the **UTERUS**.

When an Inflammation begins to suppurate, the Suppuration is to be promoted by a Cataplasm of Fœnugreek and Linseed, or rather of Barley-meal, to which let a Fig be added; sometimes Pigeons-dung is used. Frequent Incisions are recommended, and Pessaries of a heating and irritating nature. But it ought to be observed, that the *Abscess* discharges itself sometimes by the Orifice of the Uterus, sometimes into the Bladder, and oftentimes into the Intestinum rectum. *Oribas. Synopsis. lib. ix. cap. 51.*

The Seed of Treacle-mustard is of so acrid a quality, as to break Internal *Abscesses*, if drank. *Orib. de Virt. Simpl. lib. ii. cap. 1.*

If a disease turn to an *Abscess*, the patient being in a good way, we are to divert our thoughts and concern to this new disorder. While the Fever keeps its course, and the Urine appears always thin and crude, never depositing a Sediment, if there be felt in any of the Lower parts, as in the Legs, or about any Joint, a Weight or a Tension, a Heat or a Pain, without manifest cause, we are to expect an *Abscess* in that part. If the patient be suddenly taken with a difficulty of Breathing, and is soon relieved, and be afterward seized with a Heaviness or Pain in the Head, a profound Sleep, or Deafness, he will unavoidably have an *Abscess* in the Glands about the Ears. *Abscesses* happen principally in Winter, and to those who are past thirty. *Actius Tetrab. ii. Sermon. 1. cap. 51.*

If the Inflammation continues, and inclines to a Suppuration, we are by all means to endeavour that the Transmutation may be perfected as soon as possible. Wash the part affected therefore with a Decoction of Marsh-mallows and Figs, and apply Bread or Barley-meal, with Water and Oil, to the place. If the Suppuration be difficult, apply Barley or Bread boiled in a Decoction of fat Figs and Marsh-mallows. If it continue still obstinate, we must add Pigeons-dung, Nitre, (not our Nitre, but a fix'd Alkaline salt) and Turpentine. The transmutation into Pus being perfected, the place is to be opened at the most eminent part, for there the Skin is thinnest; and if any part of the suppurated place appear putrefied, it is necessary to cut it off. But the Resection must be in the figure of a Myrtle-leaf, which indeed ought strictly to be observed in *Abscesses* under the Arm-pits, and of the Groins; but in the Head, and such like places, no more than a simple Incision is used, after which we strew fine powder of Frankincense in the cavity of the wound, and put Lint therein. Our author goes on with prescribing the same treatment of an *Abscess* where several Incisions are made, as is quoted below from *P. Ægineta*, and then recommends for a Detergent the Egyptian plaister, which, says he, consists of equal parts of Liquid turpentine, Honey, and Oil of roses; but for strong Bodies, and very foul Ulcers, he recommends an equal measure of Turpentine and Honey, without Oil, as a wonderful Deterfive. But for Ulcers that are difficult to cleanse, the yellow Egyptian ointment, which they call Coctum, does good service. It consists of *Ærugo rafa* and Honey boiled together till they become of a yellow colour.

An approved **SUPPURATORY** for **ABSCESSSES** is this, *viz.*

Take of Wild-mallows bruised and boiled, Meal of wheat, Hogs-dung, of each equal parts, boil them in Sapa (they must boil to a consumption of one half) and apply it to the place, and a Suppuration will very soon be brought about.

Here follows another Remedy, called the **PHILOSOPHICAL MEDICINE** for **INFLAMMATIONS**, particularly in the Breasts and Glands.

Take of the Fat of hogs an ounce and a half, the Whites of two eggs, Honey as much as will fill the two Egg-shells, two ounces of Nitre, of Meal of dried Barley, called Polenta, as much as is sufficient. Melt the Fat, and mix it with the Eggs and Honey; then add the Nitre, and lastly, as much of the Meal as will make it into a Plaister.

Some prepare it thus:

They take eleven eggs with the Yolks, one pound of Meal of dried Barley, called Polenta, one pound of Hog's fat, Honey as much as is necessary; for if they intend to discuss, they put the more Honey; but if Mitigation only be designed, they add the less. Some add Nitre; but

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what has Nitre in it is more discutitive; what has none rather mitigates. Use also that which is prepared with the Juice of Fleabane.

To break **ABSCESSSES**

Take Nitre and Gum Ammoniac worked up together with Vinegar, and apply them to the place as long as you intend to break it. Some, instead of Ammoniac, use Frankincense.

To discuss an *Abscess* even after alteration, use the Emplastrum Ariobarzanium, or that called Dionysianum. See below.

The **ÆGYPTIAN DETERGENT** of **ORIBASII**.

Take one pint of clarified Honey, two pints of Vinegar, one ounce of Squama aris, four drams of *Ærugo*. Boil the Vinegar and Honey to the consistence of Honey, and then mix up the rest.

Another excellent **DERGENT** of the same author for foul **ULCERS**.

Take of Lees of oil, Clarified honey, and liquid Alum, equal quantities.

Another Medicine, to discuss or break an **ABSCESS**, and evacuate it without Pain:

Take of Spuma Argenti, Cerufs, Ammoniac, each one pound; Oil a sufficient quantity, the Resine of the Pine-tree, Propolis, (Bee-glue) Opopanax, of each an ounce and a half, of Castor four ounces, of Galbanum, Myrrh, Frankincense, each two ounces, Vinegar a sufficient quantity. Boil the Spuma Argenti and Cerufs in the Vinegar; bruise the ingredients, that are proper to be bruised, in the Vinegar, and melt the rest, and mix them with the things that are boiled, and adding them to the bruised, cool and work them altogether. *Actius Tetrab. iv. serm. 2. cap. 32.*

The **EMPLASTRUM ARIOBARZANIUM**.

Take of Spuma Argenti one ounce, of Cerufs one pound five ounces, of Sea water twenty five ounces, of old Oil one pound, of Whelks calcined seven ounces, of yellow Wax nine ounces, of Turpentine six ounces, of Frankincense three ounces and three scruples. *P. Æginet. lib. vii. cap. 17.*

EMPLASTUM DIONYSIANUM.

The celebrated **DIONYSIAN PLAISTER** for **ABSCESSSES**, and for **TUMID BREASTS** and **GLANDS**.

Take of old Oil, Water, each a pint; let them boil a little, and then put in six ounces of Aphronitre, an ounce or two of Misy, and boil it till it will not stick to the Fingers, then add of grained Frankincense, Wax, Turpentine, each six ounces. *P. Æginet. lib. iv. cap. 17.*

ABSCESSSES of the **NAILS**, called **PARONYCHIAE**, in English **WHITLOWS**, or **FELONS**.

At the beginning of a Paronychia, whether on the Nails of the Fingers or Toes, before it comes to a Suppuration, apply Wool, dipt in cold Water, to the part affected, or refrigerate it continually with a Linen cloth, dipt in cold water, and squeeze it over the place; or apply Frankincense and Galls bruised with Honey, either separately, or mixed together; or sprinkle it with the Juice of Myrtle-leaves bruised, or apply Cerate of Myrtle, or Ear-wax, and it will be healed. If there be an Inflammation, apply Bread moistened with Water, with Oil of roses, or the tender Leaves of Olives, or the Powder of Cadmia. The Flesh ought to be separated from the Nails all round, and Lint interposed, and the applications well bound on. Powder of Spodium may also be sprinkled on the place. Another medicine for an Exulcerated Paronychia is as follows: *Ærugo*, Spuma Argenti, each four drams, Sarcocolla one dram, reduce them to powder, and sprinkle the place well with the same; or apply the Meal of the bitter Vetch. When you have raised the Flesh from the Nail, as before advised, apply a Linen cloth, squeezed out of Wine, and upon that a Sponge dipt in Wine, which is my common practice. Another Medicine which I use is the following: Nitre, Squama aris, Pumice-stone calcined, each one ounce, Fullers-earth three ounces, beat them in Vinegar, mixed with a little Honey, and make them into Troches, and when you have occasion to use them dilute them in Water, and spread it on a Linen cloth. Another famous Troche, which I also make use of, diluted also in Wine, is called the Iris, and is thus prepared: Take of Liquid alum one hundred drams, of Saffron, Myrrh, each eight drams (some add eight drams of Aloes). Pound them, and make them into Troches, and use them with Wine, and tie over them a Linen cloth dipt in Wine. Masi's Troches is a good medicine in this case, and so are others of the like kind. If the *Abscess* eats and spreads, its progress may be stopped by plentifully strewing on it the Powder of burnt Orpiment, laying on it a Linen cloth squeezed out of Wine. I use Orpiment and red Arsenic, powdered in equal quantities together; and to

heal

beal the place mix the foresaid with liquid Turpentine. If the Paronychia be suppurated, first pierce it, and evacuate the Humour; then apply the Meal of Lentils, mixed with Honey, to the place, or else fresh Roses, or dried ones after they have been bruised and moistened with Water. *Aetius Tetr. iv. Serm. 2. cap. 75.*

For Internal ABSCESSSES an ECLÉGMA, so powerful a DETERGENT that it brings off large Films or Pellicles.

Take of Cardamoms eight drams, of Sagapenum and Myrrh each four drams, of Opium two drams, of Castor two drams, of Pepper one dram; reduce them with Water into the form of Troches of the weight of twenty Grains, and give one of these at a time in warm Water.

The THESPIANA for Internal ABSCESSSES.

Take Seeds of Smallage, of Opium, wild Fennel flowers, each three drams, of Castor two drams, wild Carrot seeds, Orris, Mustard, each seven drams; make them into an Eclegma with clarified Honey, and give the quantity of a Halfe-nut in Water for a dose. *Aetius Tetrab. ii. Serm. 4. cap. 65. From Archigenes.*

AN ABSCESS of the INTESTINES.

An *Abscess* is sometimes formed in the Intestines, and when it breaks, quantities of aqueous Pus are voided by Stool, which the ignorant and unexperienced mistake for a symptom of a Dysentery; and indeed, if the Exulceration continue long after the breaking, it is treated in the same manner as a Dysentery; but in the beginning their treatment is very different. And it is certain that some patients have been endangered by unskilful physicians, who have begun with Infusions, and other things proper for a Dysentery. These distempers therefore are carefully to be distinguished, and indeed they are easily known one from another. Before an *Abscess* there is always a throbbing Pain, which is felt near the part affected, but no biting sensation, that shifts from place to place, which is the usual Forerunner of a Dysentery. Again, the beginning of a Suppuration is attended with unequal Shiverings, which increase and remit, and a Fever, with an Exacerbation of the symptoms in the evening. But after a perfect transmutation of the Humour [into Pus], the Symptoms are much abated, and the Pain mitigated, till the time of breaking approaches, and then the Pain increases anew, and sometimes the Belly is quite bound up. After Breaking, the Stools are as has been said, whereas none of that nature attend a Dysentery.

In this disorder we apply Cataplasms of Linseed, mixed with Astringents, such as Dates, Quinces, and the like. To prevent the increase of the Flux, we use Infusions of the Ptilanæ Succus, Alica, with some moderate Astringent; for we are cautious of causing too great an Astringency in these cases. By Cataplasms and Infusions as aforesaid, we mitigate the Inflammation. If the breaking of the *Abscess* is suspected, we promote it by Epithems of Figs and Marsh-mallows mixed with Pigeons-dung. If there be room to hope that the Inflammation may be dissipated and vanish, we apply Epithems prepared of such ingredients as are remarkable for their discutient and digestive qualities. One of the best compositions in this kind is the Emplastrum Anicetum (the Invincible plaister). If we are assured that the *Abscess* is broken, we have recourse to Infusions, first of the Ptilanæ Succus, with which afterwards we mix a little Honey, to cleanse the Ulcer. If what comes off indicates an extraordinary foulness, we add to the Ptilan and Honey a Decoction of Lentils and the outer Rind of Pomegranates (Malicorium). When the Ulcers are cleansed, we are to omit the Honey in the Infusion, and substitute in its stead a little of the Troches of Winter Cherries, in order to induce a Cicatrification. When this is accomplished, we are yet to see that the particles thus restored be mollified and subside; for there is danger of a fresh collection of Humours in the same place. If any Sinus remain, go on with the same remedy as before; if the Matter issuing from the Ulcers corrode the adjacent parts, you are to have recourse to the remedies proper to be used in the beginning of a Dysentery. *Aetius Tetrab. iii. Serm. 1. cap. 42.*

ARTHRITIC, or GOUTY ABSCESSSES of the INTESTINES.

A gouty Dysentery sometimes degenerates into an *Abscess*, just in the same manner as an Hemoptoe does into an *Abscess* of the Lungs.

This *Abscess* ends like all other *Abscesses*, in Health, a Scirrhus, or a Gangrene.

This sort of *Abscess* is sometimes so large, as to contain two or three pints of Pus.

Celsus, lib. v. c. 28. observes, that large *Abscesses* generally follow Fevers, or Pains of any particular part, especially of the Belly.

This *Abscess* is more subject to a Relapse, than any other *Abscess* whatsoever.

If this *Abscess* happens in the Anus, it must be cured as a Primigenial *Abscess* of the part.

An *Abscess* often happens in the Oesophagus, Stomach, or Intestines, without giving any reason to suspect it, till the

Vomica breaks, and the Pus is discharged. The only things that can give any warning of it are, a previous vomiting of Blood, or an Arthritic Dysentery. And when either of these have preceded, we should guard against returns of them; and at the same time, and by the same means, against an *Abscess*.

As soon as ever the Vomica is broke, let the patient keep his bed, or at least indulge rest as much as possible.

If the Pus be discharged, either by Vomit or Stool, too copiously, let it be moderated by Laudanum, but by no means stopped.

Let the Temples, Nose and Tongue be moistened with Laudanum, till the Flux is restrained within moderate bounds.

Then, in order to dilute the Pus, bring it away by degrees, and deterge the Ulcer, let the patient take every fourth, fifth, or sixth hour, a glass of the following Apozem.

Take of clean Barley half an ounce,

Roots of the lesser Comfrey an ounce,

Tops of Betony and Sanicle, each two drams;

Boil these ingredients in three pints of water to two, and add to it when strained, Honey of Roses two or three ounces.

Make an Apozem.

Mean time, in case of great Faintness, let the patient take a glass of generous Wine, or some Cordial Julap. And let nothing be done to hinder the discharge of the Pus.

When the Vomiting, Diarrhoea, and Evacuation of Pus cease, the patient should take a scruple or half a scruple of Turpentine, mixed with the yolk of an Egg; or half a scruple of Lucatellus's Balsam, with Myrrh sufficient to make it of a consistence fit for Pills. And this should be repeated twice a day with a draught of the Apozem.

All Acids and Acrids must be avoided, and even all Cardiacs, which are strong enough to exagitate the Blood, and promoting a discharge from the wounded Vessels. Let the patient's food be Jellies of Calves-feet, Hartshorn, or Ivory; or Broths made with Barley, Oatmeal, Chicken, Mutton, or Veal.

If the patient has too many Stools, let him drink the white Decoction; if he be costive, Hydromel.

In order to prevent a Relapse, the Diuretic waters are most effectual; to which may be added Salt and Crocus of Mars, Myrrh, and Japan Earth, with Syrup of Quinces, in the form of Pills. For by them the wounded and debilitated Parts are strengthened and contracted, and the offending Matter is carried off by Urine.

Bleeding in Plethoric habits may be proper, where nothing contra-indicates. Walking exercise, Frictions of the Feet, and warm bathing, may be useful; but purging is to be avoided.

Musgrave de Arthritide Anomala.

An *Abscess* is a Corruption and Alteration of the Flesh, or fleshy parts, as the Muscles, Veins and Arteries. Some *Abscesses* are contained in a Bag, as Atheromata, Steatomata, Melicerides; others have no Bag, and these are *Abscesses* properly so called, of which only we intend to speak.

An *Abscess* is generally preceded by an Inflammation; though sometimes, as Galen says, it is found without, as it happens when it is generated of good Blood. For immediately from the Beginning, says he, on account of some other Humour, of what kind soever, the Skin comes off, and in time the Matter which constitutes the sore absceades from the other parts. So that, after Incision, such *Abscesses* have seemed to contain all sorts of Humours and solid Bodies; for there have been found in them Corpuscles resembling Excrement, Urine, Clots of Blood, Melleous and Mucous Juices, Bones, Nails, Hair, and even Animals very much like those which owe their rise to Putrefaction. He even says farther, that there have been observed in them things like stones, sand, shells, wood, coals, clay, chips, lees of Oil or Wine, especially in old *Abscesses*, which owed their formation to an impetuous Flux of Humours to their receptacle.

To prepare the way for an *Abscess* after an Inflammation, there comes on a vehement heat and increase of the Tumour, which grows redder and hard, with a pricking Pain and Throbbing, and a weight as if something hung to the part. If a noble part be affected, a Fever accompanies the *Abscess*, with Shiverings; and at night the Pain and Fever are exasperated, by which means the Inflammation sometimes spreads to the adjacent Glands. When the *Abscess* is perfected, the symptoms are for the most part mitigated. The pricking Pain turns to an Itching, which is succeeded gradually by a Stupidity. The Tumour grows to a Head, becomes soft, and yielding to the touch, and at length the Skin breaks, or is perforated at the point. If the Tumour breaks of itself, or by the Help of Medicines, it is treated by applying linen Rags to receive the Pus, which is evacuated time after time; if it is opened by a surgeon, it is managed according to the rules of his art. *P. Aegineta. lib. iv. cap. 18.*

After a perfect alteration into Pus, which is known by the mitigation of the symptoms, as the Fever, Pain, Redness, Throbbing, the gathering of the Tumour to a head, and the subsiding of the Pus under the pressure of the Finger, especially

if the *Abcesses* lie shallow just under the Skin, we betake ourselves to surgery. But if it neither subsides under the touch, nor comes to a head, by reason of its deep situation, we content ourselves with the other signs of alteration, and so proceed to operation. But you are to observe, that we make an Incision before a perfect mutation into Pus, if the *Abcesses* be seated near a Joint, or some principal part, for fear, while the Suppuration proceeds, some Ligament, or necessary part should be corrupted. We are directed by Hippocrates to cut a crude *Abcessus*, if it lies near the Anus, to prevent a Fistula. We are then to cut, tho' not to make an Incision always alike, but with regard to the place. As for instance, we are to follow the traces of the natural lines, if it be in the Face; or the way of growth of the Hair, if it happen about the Head; and, universally speaking, all possible care is to be taken of the natural comeliness of the part affected. When we make an Incision in the Limbs, we do it lengthways, as in Muscles and Tendons, avoiding the Nerves, Arteries and principal parts, with an eye to the safety of the patient; which must be consulted, sometimes by cutting lengthways, at other times by dividing transversely, as the particular case requires. In small *Abcesses* we make but one Incision, in large ones more, according to their bigness, cutting every where smaller Orifices convenient for the Efflux of the Pus. *Abcesses* that rise with a very sharp head, crude, thin, and mortified, are to be amputated triangularwise, or according to the figure of a Myrtle-leaf, or some other angular figure; for that of a circle is unfit to cicatrize. Such as do not rise to a head are to be treated with a bare Incision. If we discover a large Sinus, and the incumbent skin be carnosous, and capable of Glutination, we make Incisions on the place only, to make way for the Efflux of the Matter: but if the skin be thin, and void of Flesh, we divide the whole, by making an Incision lengthways, and afterwards, if the Corpuscles on both sides the Section be very thin, and quite bare of Flesh, we cut them off. After the operation, and wiping out the place with a Sponge, if the *Abcesses* be small, and there be but one Incision, we dress with nothing but Lint; but if it be large, with several Incisions, we thrust a Tent into them, which may be drawn through. We also fill up with Lint those *Abcesses* which are amputated; and if the Blood bursts out, we use cold Water, or Posca; but if the place continues to bleed, we sprinkle a little Powder of Chalcitis, which is often used also when the Flesh is flabby and putrid. Moreover in winter, and to Nervous Constitutions, we apply Bolsters moistened with Wine and Oil; but in summer, and in a fleshy Habit of Body, it is enough to dip them in Water and Oil, or Wine and Oil cold, and then apply the Bandage, embrocating the place next day with the same liquors. The third day, after taking off the Bandage, and Deterfion with a Sponge, we use the Tetrapharmacum spread on Lint, and if there be no Inflammation, repeat the Embrocation to keep the dressings moist. But in case of an Inflammation, after we have well washed the place, we lay over it a digestive Cataplasim. The Inflammation being repressed, the cure goes on by suppurating and incarnating Medicines, and the Sinus is healed by Conglutinants. *P. Aegineta, lib. vi. cap. 34.*

The Emplastrum regium Tetrapharmacum is prepared of equal quantities of Wax, Colophony, Pitch and Bulls Fat. *P. Aegineta, lib. vii. cap. 17.*

A CATAPLASM for ABSCESSES, ERYSIPELAS, HERPES, PAROTIDES, and BURNINGS.

Take a pound of the fresh tender leaves of Marsh-mallows, and boil them in Vinegar, and bruise them well; then add Oil of Roses four ounces, of Spuma Argenti, Cerufs, each two ounces and a half, and bruise it all with the Juice of Coriander, or Floutleek, or Nightshade; this done, with crumbs of Bread make it up into a Plaister, and lay it on. Or use the following Plaister:

Take of Oleum Cecinum and Oil of Myrtle each one pound, of Wax five ounces, of Spuma Argenti three ounces, of *Aerugo rafa* two ounces; let the *Aerugo* and Spuma Argenti be pounded with Vinegar. *P. Aegineta, lib. iv. cap. 21.*

A PLAISTER of NITRE for ABSCESSES and harden'd TUMOURS.

Take of old Oil, Wax, Aphronitrum, Sope, Lye, each one pound; of Turpentine six ounces, of Galbanum, Bee-glue, Gum Ammoniac, each one ounce; let the Wax, the Oil and the Lye be strained through Lime, and beat the Nitre in the Lye. *P. Aegineta, lib. vii. cap. 17.*

To break an ABSCESS.

Since some delicate persons cannot bear an Incision, we are to try what can be done by drawing medicines, such as the Roots of Narcissus, Honey and Water boiled with Oil of Orris; or the tender Roots of the Reed bruised with Honey; or, if they are hard, first boiled in Honey and Water; or apply Birthwort with Honey.

Dry Pitch, and Bee-glue of Crete, an equal quantity of each; both breaks and cicatrizes *Abcesses*. *P. Aeginet. lib. iv. cap. 18.*

To break an *Abcesses* caused by an Inflammation of the Liver, we use a Cataplasim *ex Trisperma*, with Refine, Grains of Frankincense, Pitch, Roots of Marsh-mallows, and the Dung of Pigeons and Goats. The patient must drink the Decoction of Poley Mountain, or Fumitory that grows by the Hedge, boiled to a third Part; or the Decoction of Thilapi, or of Succory, or of Germander. When the *Abcesses* is broken, he must drink Water and Honey, and such things as are proper for ulcerated Kidneys; outwardly we use the Plaister of Mnaseas (prepared of Marsh-mallows) and other Emollients, or the Icesian Plaister, or that which is prepared of Willows. *P. Aegineta, lib. iii. cap. 46.*

THE ICESIAN PLAISTER for STRUMÆ, ABSCESSES, the SPLEEN, GOUT, and SCIATICA.

Take of Spuma Argenti one hundred and twenty drams, of old Oil two pints, of Vinegar one pint, of *Aerugo* one dram, of the Bark of Fir eight drams; of the Chamaeleon with its root, Euphorbium, Juice of Hypocistis, Bee-glue, Myrrh, Pellitory of Spain, and Elecampane, each sixteen drams, of Wax three pounds. *P. Aeginet. lib. vii. cap. 17.*

THE EMPLASTRUM SMILIIUM for ABSCESSES.

Take a pound and a half of old Oil; of Spuma Argenti, red Nitre, Sal Ammoniac, of Lye of the Althes of the Fig-tree, made with an addition of Lime, Refine, each one pound, of Galbanum, Gum Ammoniac, each a quarter of a pound; of Vitriol four ounces, of Wax six ounces, of *Aerugo*, Opopanax, each one ounce, of Vinegar a sufficient quantity. Boil the Spuma Argenti and *Aerugo* in the Oil till it will not foul, and then add the rest. *P. Aeginet. lib. vii. cap. 17.*

If the *Abcesses* resists the Medicine, and there be Pus in it, an Incision ought to be made, and the Pus evacuated. After this use no more Oil or Water; but if the place require washing, use Honey and Water, Posca, or Wine, or Wine and Honey for that purpose. If there be an Inflammation, apply a Cataplasim of Lentils: If there be none, any approved Plaister in such cases will serve, especially one prepared with Chalcitis, and over it lay a Sponge, or piece of Wool dipt in rough Wine; but apply no fat Medicine, such as the Tetrapharmacum; for the wound requires vehement Driers. *P. Aegineta, lib. iv. cap. 18.*

When the serous humour in the Veins grows redundant, and putrefies, a Fever arises, and the Urine becomes for the most part thick and turbid; and Nature now hurrying to a Crisis, plenty of thin Urine, much above the quantity of what is drank, comes off, and this is called a Crisis by Urine: but when the humour is crude, and the season of the year unfavourable, and the expulsive faculty drives out what is superfluous, if the noxious humour makes its way to the Head, and there make an eruption, *Abcesses* are generated under the Ears, which are called Parotides. Sometimes an Erysipelas, and Protuberances in the Neck arise from bilious and other corrupt juices. If the humour takes its course downwards, there arises what we call a *Translation* [*ἀπόσκημμα*]; but if the humour turn inwards, there is form'd an *Abcesses* [*ἀπύημα*]. Of these, such as appear in sight are much the better, and easier to be managed; but such as lie deep and out of reach, have need of a great deal of care and good fortune to attend them: for unless they are discharged downwards by Stool or Urine, or, when they affect the Breast, break, and are brought up by coughing, tho' they are posterior in point of time they are sometimes accounted worse than the distemper which preceded them. *Aetnarius, lib. ii. cap. 2.*

For *Abcesses*, take the Root of the white Reed, and beat it up well with Fat, and anoint the place with it, and you will see wonders; for it mollifies, breaks, and dissolves in a surprising manner. *Myrepsus, sect. xxxviii. cap. 107.*

For ABSCESSES, TUBERCLES, and PARI, a much approved and wonderful Medicine.

Take the Leaves of Nettles, bruise and beat them, and rub them warm on the place. Or take the Leaves of Pellitory of the Wall, pounded and bruised, and anoint the part affected. *Myrepsus, sect. xlv. cap. 11.*

The following cures BURROES, and all sorts of PHLEGMONS.

The Leaves of the wild Olive bruised, and rubbed on the place; or pound the Leaves of Fleabane, and anoint the place with them well warmed. *Myrepsus, sect. xlv. cap. 11.*

An approved Remedy against ABSCESSES, STRUMÆ, ATHEROMATA, MELICERIDES, and TUBERCLES.

Take of Iadanum, Bdellium, Galbanum, Gum Ammoniac, Bee-glue, Turpentine, of each one ounce. Pound and mix them well together. *Myrepsus, sect. xlv. cap. 16.*

As almost all *Abcesses* are the consequences of Inflammations, and these produce a variety of events as they are differently complicated with other disorders, it will be proper to make

some inquiry into their disposition. Inflammations from all causes have three ways of terminating, either by Disperſion, Suppuration, or Gangrene; a Scirrhus after an Inflammation of a Gland is always mentioned as a fourth, but I think with impropriety, ſince it ſeldom or never occurs but in Venereal, Scrophulous, or Cancerous Caſes; and then it is the forerunner, and not the conſequence of an Inflammation, the Tumour generally appearing ſome time before the diſcolouration. *Sharp.*

The uſe of too hot applications, at an improper time, or in the beginning of an Inflammation, frequently cauſes an *Absceſs*; a remarkable obſervation of which is as follows:

A decayed old gentleman walking in the ſtreets one evening, was cruſhed up to a wall by a cart; the wheel paſſing too near him, bruised the outſide of his Left-leg, but did not break the Skin: it was ſuddenly ſwelled, and very painful. His friends chafed it with Brandy, and dipping a cloth in the ſame, bound it about the part. By this way of dreſſing, that ſide of his Leg ſwelled and inflamed very much. Others adviſed him Luſcatellus's Baſam; by which improper application the Fluxion was increaſed, and the patient confined to his bed. Here was an object of charity, upon which account I was ſent to him. I found the outſide of his Leg ſwelled and apoſtemated from the Gartering to the Small. I laid it open by Cauſtic an inch or two, according to the length of the Member. In dividing the Eſcar, there was diſcharged a large quantity of Matter, with clotted Blood in it. I dreſſed the Eſcar with Lenients, and embrocated the parts affected with Oil of Roſes and red Wine, and applied an Emplaſter of Armenian Bole over the Tumour, with Compreſs and Bandage. The next day I brought a Decoction of Wormwood, Chamomile flowers, red Roſes and Myrtle-berries, fomented the Leg, and dreſſed the Eſcar with Lenients, to haſten Suppuration; then by good Bandage thruſt out the Matter, and endeavoured to agglutinate the hollow parts; but could not do it without laying it more open by a ſnip made with a Probe-ſcissors. After which I deterged the Ulcer with the Vitriol-ſtone, and with Baſilicon mixed with Red-mercury-precipitate. Then I incarned and cicatrized it. If, inſtead of Spirits of Wine, &c. they had dreſſed this man's Leg with Armenian Bole, Vinegar, Whites of eggs, and Oil of Roſes, they might have haply prevented the pain and trouble that followed. *Wiſeman.*

There are ſome Inflammations, ſuch as for the general part are thoſe which proceed from the Criſis of a Fever, wherein Diſcuſſion ought by no means to be attempted, leſt a Mortification be the conſequence, and the common Furuncle or Boil; the Juices conſtituting this Tumour being ſo groſs and viſcid as to make it wholly incapable of Reſolution or Diſcuſſion. *Wiſeman.*

As all Inflammatory Tumours tending to ſuppurate are accompanied with Pain, Puſtulation, Tenſion, and a ſymptomatic Fever, ſo if there is an increaſe of theſe, with enlargement of the Tumour, and eſpecially if a ſmall Rigor comes on, it is hardly to be doubted but Matter will be form'd. *Sharp.*

In this caſe, Suppuration muſt be promoted by ſuch applications as increaſe the native Heat in the affected part; for it Nature is not aſſiſted in the ripening theſe Tumours, a Mortification is frequently the conſequence.

Yet it is not unfrequent to ſee a Suppuration made accidentally by cold Topics, which by a ſlight gentle Aſtriſtion of the Pores perform the office of Emplaſtics; as white Ointment, Sorrel roaſted in embers. Nay in ſome Tumours I have ſeen Suppuration cauſed by the ſtronger Diſcutients. *Wiſeman.*

Absceſſes are more or leſs dangerous according to their nature or ſituation. Thus an *Absceſs* from the Criſis of a Fever, or Strumous *Absceſſes*, are always attended with more danger and difficulty than thoſe which proceed from a Fullneſs of Blood; the Tendons, Periosteum, and even the Bones themſelves, being often much injured by theſe Impoſthumations.

Absceſſes in the internal Muſcles of the Larynx, as they threaten the Suffocation of the patient, are certainly far more dangerous than *Absceſſes* in the Muſcles of the Limbs.

So alſo are thoſe on the Breſt, Belly, or near the Joints, from the Sinuſſes and Fiſtulas, which they generally leave behind.

Absceſſes in the Liver, Lungs, Pleura, and Kidneys are all extremely dangerous, from the Office and Function of each part, and ſeldom admit of any cure, but generally bring on a Conſumption and Death.

Yet ſome caſes we have, where Nature, with a little aſſiſtance, has performed wonders; one of which I have here ſet down.

A daughter of a ſubſtantial citizen laboured under an *Absceſs* in the Region of her Left-kidney, and was long treated by a bold empiric, who promiſed cure; but after all his endeavours, the child languiſhing under the Ulcer, ſometimes by reaſon of the great diſcharge of Matter by Urine, and other times through the ſuppreſſion of it, great Pains were ſtirred up within the Body, and outwardly in the *Absceſs*. I being

conſulted, obſerved that the external *Absceſs* took its original from the Ulcer within the Kidney, and required another manner of dreſſing, its cure being the work of time. I propoſed the laying it open to the very part where the Matter paſſed forth from the Kidney. To which purpoſe I applied a Cauſtic upon the Sinus below, divided the Eſcar, and dreſſed it up with Lenients. Then after Separation and Diſteſtion of the Ulcer, ſearching the ſame with my Probe, I found the Sinus run up above the Orifice; which being alſo laid open, I diſcovered the paſſage into the Kidney, and felt the ſide of the laſt Short-rib bared by the Matter in its paſſing out. I dreſſed the Ulcer with the mundificative Ointment of Smal-lage, and healed up the remaining Sinuſſes above and below to the very Aperture. While I was doing this work, Dr. Barwick was conſulted to help us in the cure by Internals, who preſcribed a Traumatic Decoction of Sarſa, &c. with the more temperate plants, and Baſamic Pills to contemperate the Humours. During my diſpoſing of this Ulcer to retain a Cannula, the Matter diſcharged by Urine in great quantity; and the patient was as ſorely afflicted, and had the ſame ſymptoms that others have who are diſeaſed with Ulcers or Stones in the Kidney; but after vent was given by a ſhort Cannula of lead, ſhe recovered. Having continued the uſe of the Cannula ſome months, I removed it, and kept a Pea juſt in the opening, and by red Sparadropes and Compreſs retained it on; then left her to her mother to dreſs, and only called ſometimes, when they gave me notice of their wants. After a year or thereabout that ſhe had kept this Fontanel open, the internal pains and diſcharge of Impurities ceaſed, and ſhe grew more fleſhy and ſtrong. She went alſo daily to a neighbouring ſchool, where ſhe was exerciſed in dancing, &c. After the ſpace of two years, or thereabout, the Ulcer ſeeming not to matter more than might be expected from a ſmall Fontanel, the mother caſt out the Pea, and permitted it to heal up. But being ſoon alarmed by the old accidents which returned upon the child, ſhe ſent for me. I opened it again, and left them to keep it ſo. Dr. Barwick was alſo again conſulted, who repeated the former method with ſome little alteration. The Ulcer was afterward kept open near three years, during which ſhe repeated her courſe of phyſick Spring and Fall, and was frequently brought to me. At length I ſeeing her well grown, and of a fleſhy and healthy Complexion, and the Fontanel in a manner dried up, I adviſed them to throw out the Pea, it being of no uſe. They did ſo; from which time the patient hath continued ſtrong and well, and is ſince married. *Wiſeman.*

Applications to promote Suppuration are, the Fats of all domeſtic creatures, old Oil, Onions roaſted in embers, Lilly-roots, Mallows, and Maſh-mallows, Colts-foot, Bryony, and ſharp-pointed Dock-roots, Linſeed, and Fœnugreek, Barley, Lentil, Vetch, Lupin, and Wheat-meal, Gum Galbanum, Ammoniacum, Bdellium, and the Mucilage Plaſter.---For inſtance, if Nature be ſtrong, and the Matter lies not very deep, the following Cataplaſm may be applied:

Take of the Roots of Maſh-mallows, and of white Lillies each two ounces, Leaves of Colts-foot, and of Mallows each one handful; boil them in broth, and let them be well maſhed, then add of powdered Linſeed one ounce, of Wheat-meal two ounces, of Hogs-lard and freſh Butter each an ounce and a half, of Saffron in powder two ſcruples, and the Yolk of one Egg; mix and make a Cataplaſm. *Wiſeman.*

In cold Tumours, or where the Matter is deep,

Take of Bryony, and ſharp-pointed Dock-roots, each two ounces, boil and pulp them through a ſieve; to which add of Capers and Garlick, roaſted under the embers, each three ounces, Yealt or Barm two ounces, Powders of Linſeed and Fœnugreek each one ounce, Wheat-meal two ounces, Hogs-lard two ounces, of Honey and Goole-greaſe each one ounce, of Saffron in powder one dram. Mix.

Where the Matter is tough and viſcid, as in the Furuncle, Emplaſters of Gum Galbanum, Ammoniacum, Bdellium, and of the Mucilages are preferable. *Wiſeman.*

In ſcrophulous Swellings alſo, the Gum Plaſters are leſs troubleſome than any other applications, and may be renewed every four or five days, theſe Tumours being very ſlow of Suppuration.

But the uſe of ſuppurative Plaſters in haſty *Absceſſes*, or Inflammations, in a weak or dropſical Habit of Body, is by no means adviſable, as they are ſubject to ſit uneaſy on the Inflammation, are often painful to remove, when we enquire into the ſtate of the Tumour, and by their Compreſs in bad Conſtitutions, add ſomething to the diſpoſition of the part to mortify.

Amongſt

Amongst the suppurative Pultices perhaps there is none preferable to that made of Bread and Milk, softened with Oil; at least the advantage of any other over it is not to be distinguished in practice. *Sharp.*

The *Abcess* may be covered with the Pultice twice a day, till it arrives at a ripeness sufficient to require opening, which is sooner or later according to the Humour by which it is produced, or the place in which it is formed. *Wifeman.*

Basilicon, mixed up with a third part of the Ointment of Marsh-mallows, is an excellent Suppurative. *Turner.*

Abcesses from a Plethora, and in fleshy parts, with less difficulty come to maturity, than those which arise from crude Humours, and are near, or in the Joints, or parts endued with little Heat, especially those contained in a Cystis. *Wifeman.*

It often also happens, that notwithstanding the use of Cataplasms, Suppuration, through the Blood-vessels being clogged, advances very slowly. In this case, Bleeding will sometimes quicken it exceedingly; but however this practice is to be followed with caution, it being a maxim laid down in surgery, that evacuations are pernicious in every circumstance of a disease that is at last to end in Suppuration. *Sharp.*

In the formation of large *Abcesses* the Pain is sometimes almost intolerable; to remedy which an Anodyne draught will be of great service, and may be repeated at proper intervals till the *Abcess* is opened.

Dr. Sydenham's method of treating the Small-pox sufficiently justifies this way of proceeding.

Many ill consequences attend opening an *Abcess* too soon, especially in the Breasts and inguinal Glands from the Venereal Disease; for Pus generates Pus, and therefore if it is let out before all the obstructing Matter and destroyed Vessels are converted into Pus, the part that remains unsuppurated will harden, the Air will gain admittance, and the Ulcer will discharge Ichor, instead of well-concocted Pus. *Turner.*

Tumours made by translocation have been known, which have had Matter in them from their first appearance; but it being commonly lodged deep under the Muscles, the Matter is not felt till it hath raised the Tumour, which is not done without Pain, Pulsation, &c. as in a Phlegmon; but these seem deeper, and do not affect the Skin with Inflammation till the Matter reach near it.

In these Tumours we do not attend the symptoms of Suppuration, but open them as soon as any quantity of Matter offers itself.

Whilst the Matter is making, the native Heat of the part is to be preserved and increased by applications, which may alleviate the Pain, and promote Concoction. *Wifeman.*

The Paronychia Maligna is an instance of this; for were we to wait for a regular Suppuration, the loss of the Joint would be the consequence.

Suppuration is known to be completed by the thinness and eminence of the Skin in some part of the Tumour, by the fluctuation of Matter underneath, and a general remission of the Pain, Tension, and Fever: indeed it sometimes happens, if the Matter lies deep, that the symptoms, particularly the Pain, continue till the Pus is discharged.

If the Tumour becomes more compact, and thrusts out into a Cone, and looks pale, the opening of it is not to be deferred; for as Apostems opened before the Suppuration is perfected lose their Heat and become crude, so the Matter if suffered to lie long after it is made, tends to Putrefaction, whereby the parts underneath corrupt, and the *Abcess* becomes sinous, particularly if in the Joints, or over the Sutures in the Head.

So also in *Abcesses* in Ano, where through the weakness of the part, a Putrefaction is apt to follow; or in the Fauces, where the neighbouring parts are compressed, and the patient is in hazard of Strangling.

In these cases we wait not for perfect Suppuration, but by deep Scarification discharge the serous Blood, and prevent an *Abcess*. There is also care to be taken in *Abcesses* of the Breast and Belly, where the Matter is in danger of breaking inwards, for by opening these too soon, they sometimes apostematize again, or become crude and difficult to digest and cure. *Wifeman.*

Notwithstanding it is very much taught to open critical *Abcesses* before they come to an exact Suppuration, in order to give vent sooner to the noxious Matter of the disease; yet in opening before this period, they miss the very design they aim at, since but little Matter is deposited in the *Abcess* before it arrives towards its ripeness; and besides, the Ulcer afterwards grows foul, and is less disposed to heal. *Sharp.*

Abcesses are to be opened either by Knife or Caustic.

In small *Abcesses*, and in those of the Face, the Knife has the advantage, where a Caustic would destroy its beauty by the Cicatrix it occasions.

But in large *Abcesses* where the quantity of Matter is great, or we would keep the *Abcess* long open, a Caustic is more proper, from the great opening it makes, than by Puncture or Incision. *Wifeman.*

Mr. Sharp prefers the Knife even in large *Abcesses*, and ad-

vises, if there be much discoloured Skin, to cut out a circular, or oval piece of it, which operation, if done dextrously, is much less painful than by Caustic, and at once lays open a great space of the *Abcess*, which may be dressed down to the bottom, and the Matter of it freely discharged; whereas, says he, after a Caustic, though we make Incisions through the Eschar, yet the Matter will be under some confinement, and we cannot have the advantage of dressing properly till the separation of the Slough, which often requires a considerable time, so that the cure must be necessarily retarded.

Mr. Wifeman is a warm advocate for the Caustic, and says in the opening large *Abcesses* it is most safe and easy, as the Pus thereby is discharged more plentifully than by Incision; nor only for this reason does he commend the use of it, but on account of another advantage; for if a Caustic be applied on the declining part of a Tumour, the *Abcess* is sometimes near cured before the Eschar separates, if the Matter be not contained in some particular Cystis.

Turner is of the same opinion, and says the Pain proceeding from the operation of a Caustic is sufficiently recompensed by the ease of the dressing, when there is no occasion to cram in Tents or Dossils, as there must be to keep the Lips of a recent wound distended, and thereby choak in the Matter, by the one increasing the Pain, by the other the Sinuosity.

If an *Abcess* is to be opened with the Knife, if the Matter does not lie deep, the Incision must be made the whole length of the Tumour, in such manner that the depending part may be open for the discharge of the Matter, which will prevent the trouble of dilating.

By this, with good Compress and Bandage, many Apostems are healed in a very little time, without any other application than a Pledgit, armed with a common Digestive.

The Incision is always to be made according to the direction of the Fibres: If it be in the Groin or Arm-pit, it ought to be oblique: In other parts it must be made according to the length of the Member.

For should you make a transverse Incision, the Matter would bag below the wound, where, for want of a discharge, in a little time it would find a way in the Interstices of the Muscles, and produce Sinusses very difficult of cure; besides the hazard of corroding the Veins, Arteries, Nerves and Tendons, or the Bone itself, if it lies near one. *Wifeman.*

In making the Incision, great care must be taken that no large Blood-vessel be wounded. On this account it is always necessary that the surgeon should be provided not only with some restraining applications, such as Galen's powder of Frankincense and Aloes, mixed with the white of an egg, but with Ligatures, as guard against such accidents.

Nerves also and Tendons are to be taken great care of, the Pain and Fluxion arising from wounds of these always producing very dangerous symptoms, and often a Mortification.

It is a general rule that in opening large *Abcesses*, whether by Knife or Caustic, the whole Matter is not to be discharged at once, lest the heat of the part be over-weakened, or the patient faint. *Wifeman.*

Incision-knives are of various kinds, and are in use as the particular situation of the *Abcess* shall require: The common one used in opening *Abcesses* is small, strait, and round-edged, but in dilating of Sinusses, or after a Puncture, the flat-edged Knife with the Director is preferable.

In *Abcesses* of the Fauces, the blade of the Knife is shorter, and the handle longer than of the common knives. *Wifeman.*

The Lancet also comes in, as sometimes necessary in small *Abcesses*; but too often calls for the Knife or Scissars to finish what it had so imperfectly begun.

An *Abcess* sometimes bursts before Suppuration is completed; in this case the use of the Cataplasim must be continued till the Tumour will admit of dilatation (which generally happens in two or three days) with the Knife or Scissars.

For this purpose the ancients used the Root of the Papyrus. *Dioscorides.*

The Incision being made, the accidents or symptoms that attend it are to be removed. If any Bleeding should happen, it must be restrained with Galen's powder before mentioned, mixed with the white of an egg. *Wifeman.*

But the usual method of dressing an *Abcess* the first time, is with dry Lint only, or if no Blood appears, then with Dossils, armed with some Digestive warm, as Turpentine mixed with the yolk of an egg; or, which is preferable, with a mixture of Basilicon and Arcueus's Liniment, observing to lay the Dossils loose in the cavity, unless the *Abcess* be deep, and the wound narrow, as is the case sometimes of *Abcesses* in Ano, when the Lint must be crammed in pretty tight, that we may have afterwards the advantage of dressing down to the bottom, without the use of Tents.

The Dossils in deep cavities must be secured by tying a bit of thread or silk about them, many had accidents having been occasioned by one of these lying unobserved some time. Witness the following observation.

A man of about fifty years old, of a full Body and strong Constitution, was taken with a Pain under his Right-arm, with Hardness and Inflammation. I was sent for, and concluding it a *Bubo*, thrust forth by the strength of Nature, applied a plaister of Diachylum with the Gums, designing not to dress again till it was near suppurated; but the Tumour increasing with great Pain and inflamed Redness, I was put upon a necessity of applying Anodyne Cataplasms. Within few days after, it being suppurated, I opened it by Incision, and discharged a well-concocted Matter; then dressed it with Basilicon with the Yolk of an Egg upon a Tent, and applied a Plaister of Diachylum malaxed with an Ointment of Marshmallows, and afterwards dressed it with the Mundificative of Paracelsus. Having so disposed it to heal; I left dressings, and after three or four days visited the patient again; when, observing the Hardness digested off, and the *Abcess* fit to cicatrize, I left off the use of the Tent, and dressed it with a Pledget of the Ointment of Pompholix, and the Cerate over it, and left them wherewithal to finish the cure. But a few days after they sent for me again. I found it swelled, and the Matter issuing from it thin and fetid, and much more in quantity than I could expect. I enlarged the opening by Incision, and there came forth a Tent, which in his servants dressing had slipped into the *Abcess*. From that time the Matter lessened, and the *Abcess* cured without relapse by the method aforesaid. *Wifeman*.

Over the Dossils, Pledgits armed with the same Digestive must be applied to the Lips, with a large Pledgit of Basilicon above, and the whole secured with good Compress and Bandage.

The common Compress is made of linen rags folded several times; but the plaister Compress which is made of three or four folds of the common defensive plaister stuck together, and shaped as near as may be to the compass and dimension of the cavity to be compressed, observing heedfully to bring the edge thereof even with the Lips of the disjoined part, has much the preference as it remains immovable on the part it is applied to. *Turner*.

The Bandage must be suited to the situation of the wound. In the Limbs the single-headed Roller is generally used, but is oftentimes exceeded by the laced Sock, Stocking, Knee-piece, Trowse, Glove, Elbow, and Arm-piece, by their equal lacing when well fitted to the several members.

If the Roller be used, care must always be taken, that the circumvolution be made that way, whether to the right or left, as may bear first upon the extremity of the Sinus before it reach the edge of the wound or ulcer; by which the contained matter will be pressed out, and the wound unite at the same time. *Turner*.

The length of the Roller for the Arm or Leg should be about two yards, and for the Thigh a yard more must be added; its breadth, two, three, or four inches, as appears necessary; for the Fingers one of a foot long, and an inch broad, will suffice.

If the wound be on the Head, the Cap or double-headed Roller must be made use of. See *BANDAGE*.

After the *Abcess* is dressed, if it is on the Leg, it must always be placed upon a pillow; if on the Arm, in a sling, by which means a flux of humours will be prevented from falling upon the part, which would very much retard the cure, and which would inevitably happen, should the Limb be suffered to hang down.

Fainting, which sometimes happens through weakness or timorousness of the patient, may be relieved by laying him down on his Back, and sprinkling a little cold water on his Face: but if it proceeds from some preceding sickness, and is continued by the greatness of the evacuation, and noisom corrupt Matter; in this case Cordial Julaps are necessary, and may be taken at pleasure. *Wifeman*.

The Spirits may also be refreshed with Epithems, made up of some Distilled Waters and Cordial Species, with Vinegar of Roses, which for want of a physician may be prescribed. *Wifeman*.

The frequency of dressing will depend on the quantity of the discharge; once in twenty four hours is ordinarily sufficient, but sometimes to do it twice, or perhaps three times, may be necessary.

In cleaning the wound it is needless to be too scrupulously nice; but it is worth remarking, that a sore should never be wiped by drawing a piece of tow or rag over it, but only by dabbing it with fine lint, which is a much easier method for the patient; the parts about it may be wiped clean in a rougher manner without any prejudice.

I do not think the air has that ill effect on sores as is generally conceived; nor would the large *Abcess* on heels, which are often exposed to the air the whole time of cure, do well, if it was so very pernicious as it is represented; but as it tends to the making a scab, and in winter is a little painful to the new flesh, it will be right to finish the dressing as quick as may be without burying.

Another caution necessary in the treatment of *Abcesses* is, that surgeons should not upon all occasions search into their cavities, with the Finger or Probe, as it often tears them open, and indisposes them for a cure. *Sharp*.

At the next dressing if there is any considerable Hardness from the Tumour not being sufficiently suppurated, as in large *Abcesses* it frequently happens, or if the Lips of the wound are painful, and inflamed, in these cases a Fomentation prepared of the tops of Mallows, Marsh-mallows, Wormwood, and Chamomile Flowers should be ready, out of which a Stup of flannel may be wrung, and applied over the *Abcess*, to give a breathing to the part.

But if the *Abcess* was the consequence of a congested Tumour, and Nature wants assistance to preserve the heat, and strengthen the relaxed parts, instead of the emollient Fomentation above, it must be bathed with a decoction of Wormwood, Elder-flowers, red Roses, Myrtle-berries, and Fœnugreek seed, in Wine and Water, adding afterwards some Spirit of Wine. *Wifeman*.

The *Abcess* may be dressed with Liniment and Basilicon, and the Lips, if inflamed, with a mixture of Oil of Roses, and the Yolk of a new laid Egg, with Compress and Bandage as before.

The use of the Fomentation must be continued every dressing, till there is a good Digestion.

In winter the dressings may be warmed; but in summer it is superfluous.

If the Ulcer should want deterging, a little red Precipitate finely powdered, and mixed with Liniment, or Basilicon, will not only deterge it, but will incarn it, so as in a very little time to want nothing but the white Ointment, the Cerate of Lapis Calaminaris, or even dry Lint to cicatrize it.

Sometimes, notwithstanding all our care, the Matter will so insinuate itself into the parts about, and form such cavities as will not admit of this way of healing. In these cases great caution is to be had with regard to the use of Tents, which are almost universally decried in these days, though they still continue to be employed too much by the very people who would seem to explode them most; in short, they are very seldom necessary.

However, in this case they are sometimes found useful to thin the Skin for the more easy dilating, which must be done immediately.

And in some large and deep *Abcesses* of the Breasts, where the Matter cannot discharge itself by the Orifice already made, and yet does not point sufficiently to any other part for an opening, though it make signs whither it would tend if it was a little confined. In such an instance a Tent would be useful, for by plugging up the Orifice, it would make the Matter recur to the part disposed to receive it, and mark the place for a counter opening. But Tents do most good in little deep *Abcesses*, whence any extraneous body is to be evacuated, such as small splinters of Bone, &c. *Sharp*.

The Use of Injections is also recommended by many, as serviceable in deep *Abcesses*, but with little reason; for they do so much mischief by distending the parts of the *Abcess*, and in a manner macerating the new Flesh generated within them, that they are hardly proper in any case; though one of the great mischiefs of Injections, and Tents, has been the misleading surgeons into a faith, that where-ever these medicines were applied, the part would heal; and upon that presumption, they have neglected to dilate *Abcesses*, which have not only remained incurable after this treatment, but would often have done so, for want of a discharge, if they had been dressed more superficially. *Sharp*.

For the cure of these Sinusses, See *ULCER*.

Mortifications sometimes succeed large *Abcesses*, though not very often. For the method of treating them, See *GANGRENA*.

On the other hand it frequently happens, that Nature in her office of incarning is so luxuriant, as to produce great quantities of loose spongy Flesh, which often gives a deal of trouble to the surgeon, by its rising considerably above the surface of the Skin, and thereby preventing the Ulcer cicatrizing.

To remedy this inconvenience, it may be touched moderately with the Vitriol, or Alum-stone, by which it will be daily walled with little or no Pain. Dry Lint alone will often have the same effect, by absorbing the superfluous juice, and will cicatrize at the same time. When they prove troublesome, and will not give way to the common Escarotics, they may be broke in pieces by the Fingers, and pulled out, and the cavity filled with Pledgits, armed with this mixture. Take of clear Turpentine and Honey, each half a pound, the Yolks of three eggs; boil them to the consistence of an Ointment; to every ounce of which add of Red mercury-precipitate one dram. This is called Paracelsus's Mundificative, and must be continued till the Ulcer is deterged; after which it may be treated as before-mentioned. The following Observation shews the necessity sometimes of this way of proceeding.

A young gentlewoman after child-bed being indisposed in her health, her left Breast became diseased, and swelled. They contented themselves with such help as those about them could afford. But after some days it growing more painful and swelled, the apothecary brought in his brother, who endeavoured Suppuration, and after some while gave vent to the Matter, and proceeded in the cure. But while he was dressing that opening, the Fluxion increased, and other *Abcesses* were raised, and from the several Apostemations sinuous Ulcers were afterwards made. Thus the work became difficult. I was consulted. In the pulling out one of the Tents, a thin white Matter issued out in great quantity. My brother-chirurgeon called it Milk, but I thought it Matter; and observed the *Abcesses* to have begun deep in the body of the Glands, which, through length of time corrupting them, rendered the Swelling hard; and the Tent stopping in the Matter between dressings, had occasioned that large discharge we then met with. The method of cure consisted in the enlarging of that Orifice where the Matter seemed to be detained, and then to proceed with Deterfives, &c. They entertained me in the cure, and I continued my brother-chirurgeon. We began with the application of a Caustic to the part round about the Orifice, stopping the hole with Lint; by which means in a short time we made an easy way for the Matter, and saw no reason afterwards to think it Milk.

As the Escar separated, a Fungus thrust forth, which we sprinkled with red Precipitate, dressing up the Escar with Basilicon, and the other openings with Ointment of Pompholyx, and Cerate of Althæa over all. After a more full separation of that Escar, we observing the Fungus to rise more large, applied a Stuph wrung out of a Decoction of the Tops of Wormwood, Rue, Mint, and Flowers of red Roses, and Balaustines, made in Wine and Water; and the while sent for some Chalcantum, which we applied upon the Fungus, and Pledgits of Ointment of Tutty over the ulcerated parts. The second day after we took off the dressings, and found an Escar made by the Cathartic, which we thrust off, and dressed it again with the same, and continued the use of Escarotics. During those applications we applied over the Breast the Plaister of Bole to restrain the Influx; but yet the Fungus increased upon us, and raised a Swelling between that and the other Orifices. Upon which consideration we applied a large Caustic upon that Swelling, which laid some of the other Orifices into this; then divided the Escar, and dressed it up with Lenients, and covered the Fungus with Escarotics where-ever it began to thrust out, by which it was kept down. But after the Separation of this latter Escar, we seeing the Fungus great, and the way of extirpating it by Escarotics slow; and fearing the ill consequences of it, I prest with my Finger under it, and at once broke into it, and pulled it out in pieces; then filled up the place with red Precipitate, and Mundificative of Paracelsus upon Pledgits, with the aforesaid Plaister over the whole Breast, and bound it up. The second day after that we opened it again; and by this same method often repeated, we subdued the remainder of the Fungus, and raised a firm Basis, on which we incarnated, with an addition of powder of Orris-root, Myrrh, and Sarcocolla, to the fore-mentioned Mundificative; and then applied the Cerate of Agrippa over the Breast, and in few days cicatrized it with a smooth Cicatrix, the Lips falling in by the benefit of Nature, which was assisted the while by Traumatic Decoctions, &c. as in such cases is usual. *Wifeman.*

Sometimes the Lips of the Ulcer grow callous, and will not cicatrize. In this case, the actual Caustery is often found of good service, and the part must be treated after the same manner as a common Burn. For further directions see ULCER.

When an *Abcess* is judged proper to be opened by Caustic, two things are to be considered: the thickness of the Integuments, and the age of the patient; for it would be ridiculous to apply a burning Caustic to a child, when a mild one would do the business as well; and where the *Abcess* lies deep, it would be unpardonable in a surgeon, should he either apply too mild a one, or on the other hand take a proper one off too soon, that is, before it has sheathed its points in the Matter contained in the *Abcess*.

Caustics are of various sorts; the strongest is reckoned the Lapis infernalis, being the first running of Soap-makers Lees, boiled in a brass or copper ladle, to a consistence, and cut with a hot knife into pieces of several sizes, and kept close stopped from the air, till the time of use; a piece of this, of the compass of a silver three-pence, will make an Escar near as large as a six-pence, and usually performs its work in an hour's time.

A milder than this, is a Paste made of Soap-lees, and Quick-lime powdered; and a still milder, called from its softness, the Velvet Caustic, is a Paste made of Quick-lime powdered, and a little Soap. This is chiefly adapted to Infants, and tender Bodies, and may be suffered to lie on twenty four hours. *Turner.*

The best Caustic in use, is Lapis infernalis powdered and mixed into a Paste with Soap, which is to be prevented from spreading by cutting an Orifice in a piece of sticking Plaister, nearly as big as you mean to make the Escar, which being applied to the part, the Caustic must be laid on the Orifice, and preserved in its situation by a few slips of Plaister laid round the edges, and a large piece over all, with moderate Bandage to retain the whole. *Sharp.*

The size of the Caustic must always be proportioned to that of the Escar proposed; for upon the solution of its salts, in spite of all precaution they will spread, so as to form an Escar much larger than their own compass when first laid on.

This caution is not altogether unnecessary, having frequently seen an Ulcer, the effect of one of these Caustics, as big as a half-crown, and that too upon the Face, Neck, and Breasts of gentlewomen, where the Scar as much as possible ought to be avoided, which needed not to have exceeded the compass of a silver groat. *Turner.*

This Caustic generally does its business in an hour and a half, two hours, or three, according to the thickness of the Skin, and, what is very remarkable, notwithstanding its strength and sudden efficacy, it frequently gives no pain, where the Skin is not inflamed, as in making Issues, and opening some few *Abcesses*. *Sharp.*

When the Escar is made, which is known by a remission of the Pain, and the time the Caustic lay on, the Plaisters must be removed, and the Salts washed from the part with warm Milk. The Escar, now insensible to the Knife, must be cut through, and the Matter discharged, without over-much pressing the parts adjacent to get out all at once, for reasons mentioned before.

If the patient bears the discharge of the Matter without sickness or fainting, it may be necessary to cut away as much of the Escar as can be done conveniently; the remaining part is to be dressed up with Dossils armed with Basilicon, and dipt in Oil of Lillies warm, and over all a Diapalma Plaister, or an Anodyne Cataplasim, with gentle Compress and Bandage just to retain the dressings on the part. *Wifeman.*

This method must be continued till the patient grows easy, which is generally in two or three days; after which the Compress and Bandage will be absolutely requisite, by the artful management of which, and the continuance of the same Digestives, a Sinuosity may perhaps be prevented, and nothing more upon the fall of the Escar wanted than a little dry Lint to compleat the cure. *Turner.*

As *Abcesses* opened by Caustic are liable to the same accidents with those which are opened by Incision, the method of treating them are in both cases the same; we shall therefore proceed to treat of particular *Abcesses*, with their different methods of cure, in every part of the Human Body.

ABSCESSSES OF THE HEAD.

Abcesses in the Forehead and Hairy Scalp are, for the general part, the consequences of a Contusion; where the extravasated Juices, from the want of timely bleeding, and restraining applications, their regrefs through the broken Capillaries being destroyed, inflame and ripen into Matter.

If they happen upon any of the Sutures, they sometimes produce dangerous symptoms, by inflaming the Dura Mater, which passes through them, and is continued to the Pericranium. *Wifeman.* See PERICRANIUM.

In all *Abcesses* of the Hairy Scalp, the Caustic is preferable to Incision, (especially if the Matter has been so long confined as to make the Skull black or carious) as it makes way for the Rugine or Raspatory [see RUGINE] which is always to be used, except upon the Sutures, the thinness of the Skull there forbidding it; for should we wait for an Exfoliation by the common methods, some weeks, perhaps months, would be required; whereas, by the Raspatory, Incarnation is compleated in a few days.

Abcesses in the Forehead must always be opened by Incision, which must be made according to the direction of the Fibres, for a transverse wound here may cause the Eyebrows to fall over the Eyes.

Arcaeus's Liniment is the common dressing in these *Abcesses*, it being by the author designed particularly for wounds of the Head, and the cure is to be finished with dry Lint, with good Compress and Bandage.

If a Sinus should be formed, let it be opened in the most depending part, the Matter let out, and a Compress of the whole length of it applied, with the double-headed Roller or Cap; by which, and dressing as above, it will heal without farther trouble.

ABSCESSSES IN THE EYELIDS.

Internal *Abcesses* in the Eyelids must be treated by making an Incision in their most eminent part, and evacuating the Humour. After this wash the place with Brine, and bind on it a piece of Wool moistened with an Egg. Next day foment the fore, and anoint it with Honey; after this, let the cure be carried on by frequent Instillation of the Collyrium Repressum.

As for external *Abscesses* in these Parts, after Incision and Evacuation, as in the former, we apply some Lint spread with Honey, and bind thereon a piece of Wool.

If the *Abscess* affect the Cartilage of the Eyelid, if on the external part, it is not impossible; after they have been well cleansed with Egg and Honey, to incarnate them by some drying Medicine proper for the parts about the Head. If the *Abscess* lie in the inward part of the Cartilage, after the Eyelid has been turned up, and the Cartilage laid bare and scraped, lay thereon some of the finest Powder of Copper, and to the Eyelid apply an Egg beaten up with Wine and Oil of Roses; next day foment the place, and apply the Powder and Egg as before; on the third day anoint the Eyelid with Honey, and then betake yourself to the use of the Collyrium Repressum. *Actius Tetr. 2. serm. iii. cap. 79.* See COLLYRIUM.

Abscesses in the Eyelids sometimes happen, and are easily cured by a small puncture with a Lancet, and a bit of Diachylon Plaister. But these Apostemes are better prevented by letting out the Blood with the point of a Lancet, which often by a blow is thrown upon these parts in greater quantity than can be absorbed again into the circulation. No other dressing is required than dry Lint covered with a bit of defensive Plaister.

The Lachrymal Glands frequently apostemate, which is caused, as most authors imagine, by the Tears becoming acrid and corrosive, and so exciting an Inflammation and *Abscess*; tho' many of them imagine that the Tears themselves, not finding a way through the Nasal Duct, do, from stagnating in the Saccus, corrupt, and become the Matter discharged by the Puncta Lachrymalia: but the latter opinion is most certainly ill grounded; for besides that the Tears are not of a composition to become Pus, it may be observed almost at any time, upon pressing the *Abscess*, that the two Fluids appear unmixed; and with regard to the general doctrine of the sharpness of the Tears producing this disorder, I think it is much to be questioned, since the Cornea and Tunica Conjunctiva, being more sensible Membranes than the Saccus, would more readily be offended by them; but as we see they are not in the least injured, and every part of an animal Body is subject to Inflammation from internal causes, I believe this external one may be justly doubted. *Sharp.*

These *Abscesses* are sometimes so foul as not to cure by Incision; in this case a piece of the Bag itself must be cut away. *Sharp.*

The manner of performing the operation is this: Supposing the *Abscess* not broke, choose a time when it is most turgid with Matter; and to this end you may shut the patient's eye the day before, and lay little slips of Plaister upon one another across the lids, from about the Puncta lachrymalia to the internal Angle; which compressing their channels, and preventing the Flux of the Matter that way, will heap it up in the Bag, and indicate more certainly the place to be cut. If the *Abscess* is already open, the Office and Probe will inform you where to enlarge; then placing the patient in a seat of convenient height for the management of your Hand, with a small Incision-knife dilate from the upper part of the Bag down to the edge of the Orbit, without any regard to the Tendon of the Orbicularis Muscle, or fear of wounding the Blood-vessels; though if you see the Vessels, it is proper to shun them: the length of this Incision will be near four tenths of an inch. It has been advised, in opening the Bag, to introduce a small Probe through one of the Puncta into its cavity, to prevent wounding the posterior part of it; but I think this excess of care may be more troublesome than useful, since in so large a Vessel a very small share of dexterity is sufficient to avoid the mistake. In making this Incision care must be had not to cut too near the joining of the Eye-lids, because of the deformity of the succeeding Scar; though the blear Eye, or uneven contraction of the Skin in that part, after the operation, is generally owing to the use of the Caustery, and not to the wound of the Tendon of the Orbicularis Muscle; for this last is necessarily, from its situation, always cut through, but without any inconvenience, because of the firm Cicatrix afterwards that fixes it strongly to the Bone.

When the Bag is open, it is to be filled with dry Lint, which the next day may be removed, and exchanged for a Dressing dipt in a soft digestive Medicine: This must be repeated every day once or twice, according to the quantity of the discharge: Now and then, when the Matter is not good, using the precipitate Medicine, and from time to time a Sponge-tent, to prevent the too sudden reunion of the upper part of the *Abscess*. When the discharge begins to lessen, it will be proper to pass a small Probe, or silver Wire through the Nasal Duct into the Nose, every time it is dressed, in order to dilate it a little, and make way for the Tears and Matter, which by their drain will continue to keep it open. This method must be followed till the discharge is nearly over, which will be in a few weeks, and then dressing superficially with dry Lint, or any drying application, the wound will seldom fail of healing. After the cure, in order to prevent a relapse, it will be proper, for a few weeks, to wear the compressing Instrument. *Sharp.*

These *Abscesses* generally end in a Fistula Lachrymalis, for the treatment of which see FISTULA LACHRYMALIS.

In the Nose sometimes *Abscesses* are formed, and are to be treated as directed in the following observation:

A gentleman near seventy years old was sorely afflicted with a Furuncle within his Nostrils and about his Nose, with great Inflammation and Hardness. I fomented the diseased parts with a Decoction of the Tops of Marsh-mallows, Mallows, Violets, Chamomile flowers, Melilot, Linseed, and Fleawort seeds, and with a syringe injected some of the same into his Nostrils, and applied the fore-mentioned Cataplasim over his Nose. I purposed the letting him blood in the Arm, but it would not be admitted by reason of his age; but by setting on Leeches behind his Ears, I took away some Blood; also by blistering the Neck and Shoulders, I endeavoured Revulsion, by Clysters kept his Body soluble, and continued the applications, by which his Pain was somewhat mitigated. After five or six days the Skin became thin, and a white tough Matter shewed itself in several places within and about his Nose, and gradually made its way through many small openings. I made it more way here and there with the point of a Lancet, and dressed them with Oil of Lillies mixed with the Yolk of an Egg, and continued the use of the Fomentation, and applied the Cerate. I was much troubled to think what would become of his Nose, the exterior or interior parts being all stuffed with that clammy Matter, so that it would not issue out; and, when it should, I doubted it would leave little covering upon the Cartilages. To hasten it out, I daily dropt in a mixture of Honey of Roses, with Juice of Smallage decocted; and, by conveying a big Tent dipped in the same into each Nostril, I pressed the Matter outward, and sometimes pulled it away with my Forceps. It came out as if it had been broken pieces of the Spinal Marrow, and burst some of the openings into one another, which I was sorry to see. But the Matter not being accompanied with Acrimony, the hollowness filled up, and the distended Lips falling near one another, agglutinated as the Matter digested out; and by the compression I made with my Tents within the Nostrils, I enlarged them, and furthered the well-cicatrizing of the Ulcer; which was effected in a few days after, with Cicatrixes not unseemly. *Wifeman.*

ABSCESSSES about the JAWS.

The Conglobate Glands under the Jaws are very subject to *Abscesses*, which have been taken by some to be strumous, but they differ greatly; the Struma being contained in a Cystis requires to be eradicated by Escarotics after the Matter is discharged; but these, after the discharge of the Matter, are cured either of themselves, or by the ordinary intentions of Digestion.

These *Abscesses*, as the part is not very capable of Bandage, are best opened by Caustic. *Wifeman.*

After the discharge of the Matter till the Escar is separated, it must be dressed with Lenients, and the cure must be completed as in the *Abscesses* opened by Incision.

A child of about nine years old having been diseased with a Fever, some reliques of that Matter discharged themselves in a Swelling under the right Jaw, as big as a pullet's Egg. It was suppurated, and required vent, which I gave it by Incision, but could not cure it till I had applied a Caustic on the depending part. The place not being very capable of Bandage, it could not be treated so advantageously when opened by Incision, and dressed with Tents; but after the laying it more open by Caustic, the Matter plentifully discharged, and the *Abscess* cured. *Wifeman.*

ABSCESSSES of the EARS.

If an Inflammation or *Abscess* affect the Ears, the same Regimen of Diet is to be ordered as in a Fever, that is to say, a very thin one, and that affords little or no nourishment. And because this Sensorium is near the Brain, and of quick Sensation, a small error with respect to it may prove of bad consequence. Let the patient therefore live on Cremor of Ptisan, and Water, and be kept quiet; and apply fresh Fats, void of all Acrimony, to the part. If the Inflammation proceed to an *Abscess*, and Pus appears, it must be evacuated, and the *Abscess* cleansed, by the Emollients, and moderate Drawers, and Deterlives. But since some, by their negligence, let their Ears run with Pus for a long time, which is not afterwards easily dried up, and which has a very offensive smell, drying Medicines are to be used, such as those which are prepared of the Recrements of Iron with Vinegar, which are of wonderful efficacy in drying up old and foul Ulcers, especially in the Ears. *Aquarius Meth. Med. lib. iv. cap. 10.*

Abscesses near the Ears, which the Greeks call *ωραλιδε*, are accounted among Inflammations, for they are generated by an Inflammation of the Glandules about the Ears. But we seldom treat Inflammations in these parts according to the method regularly adapted to an Inflammation, when there is no concomitant

comitant Malignity, nor any extraordinary Influx of Humours, and the Body is not burdened with a Plethora; for in such a case, a Sponge dipped in Posca, and laid to the place, represses the Inflammation without any bad consequence. But in the Parotides we are obliged to take another course, and use drawing Medicines; and if these are of little effect, we apply a Cupping-glass, or frequently foment the place: for our intention is directed, by all manner of ways, to call the noxious Humours from the Internal Parts to the Superficies. However, when their Influx becomes violent, we are not to be too busy or solicitous, but let Nature have a great share in the management. Wherefore, in this case, we do not comply with the Propension of the Humours, but rather mitigate them by such Medicines as are remarkable for their lenitive qualities. Such are those prepared of the Meal of Wheat, Barley and Linseed boiled with honey'd Water, the Decoction of Fœnugreek, Marshmallows, or Chamomile, and other Medicines of a moderately hot and moist quality, whence they have the virtue not only of mitigating Pain, but of digesting and bringing to a Suppuration the confluent humours. Such are Wheaten meal, with the Decoction of Figs, and Oil, and a preparation of fine Wheaten flower and Yeast. When the Parotides are suppured, the Pus must be evacuated, either by Incision, and the Ulcer healed, as all agree, or by breaking the *Abcess* with some acrid Medicine, such as the Emplastrum Smilium, or one prepared with Garlick; or, lastly, it must be discussed by such Medicines as are of fine parts, and are, at the same time, endued with a drawing faculty; and if, after the greater part of the Pus is discussed, any Hardness should remain, it must be treated with Emollients.

Archigenes recommends the following remedies for dissolving these *Abcesses* of the Ears. Apply every day a Cataplasm of Plantain bruised with Salt, or Goat's dung, with Vinegar, or the Sharp-pointed Dock boiled in Wine, or Figs bruised or boiled with Vitriol, or Figs boiled with Wormwood, and bruised in Wine; or apply the calcined Shells of Whelks, or of the Purple-fish, with Honey; and Discussion will soon be effected. The same virtue is in Oyster-shells calcined, and applied with Honey, and in Cerate of Roses, or Oleum Cyprinum mixed with Rue, or Sulphur vivum mollified, and in Fullers Earth and Vinegar. This last boiled in Sea-water or Brine, and beaten and applied, is a most powerful Discutient. Horehound and Salt laid on Wool that is impregnated with it, and then applied, has the same virtue, and is very proper in the beginning of the Parotides; or, to name no more, apply a Cataplasm of the Meal of bitter Lupines boiled in Honey, with the addition of a moderate quantity of Quick-lime. *Actuarius, lib. vi. cap. 3.*

The external Salivary Glands behind and about the Ears are frequently afflicted with very large *Abcesses*, which are to be considered as salutary or malign according to their different causes. For instance, those which happen from an external cause, as a Bruise, whereby Blood is extravasated and cast into these Glands, are salutary, and easily cured; but those which happen after great Evacuations, or a Fever, without remission of it, are pernicious and dangerous.

As Nature is sometimes very slow in ripening these *Abcesses*, she must be assisted by the application of strong suppurative Cataplasms, or even Cupping glasses; Gum Plaisters too are proper, and, in a full Habit of Body, Bleeding may be of service. *Wifeman.*

When the Matter is well concocted, let a Caustic be applied, and proceed in the cure as in other *Abcesses*.

These *Abcesses* sometimes burst in the Ear. In such a case, a little of the Oil of St. John's Wort, mixed with Honey of Roses, and dropped into the Ear once a day, with a bit of Wool lightly pressed in after it, will forward the cure greatly: the outward parts must be kept warm with flannel, as long as the Matter continues to discharge.

Instead of digesting, by the common methods, the *Abcess* frequently turns fordid. See *ULCER*.

At other times, after it has been incarned and cicatrized, a Hardness will remain, which will require the application of another Caustic, the full compass of the induration, which having penetrated deep, the Escar must be divided to the Quick, and separated and digested as above.

A person of about fifty years of age, having long laboured under Scorbutical Affections, was seized with a slow Fever; his Head was affected with Vapours, and his Spirits oppressed; during which a Tumour arose behind his left Ear, and reached down under that Jaw, growing big and hard, of a dark red colour. We endeavoured by discutient and emollient Cataplasms and Embrocations of various sorts; but it would not yield to any of them. We repeated Venesection, and made him Fontanels between the Shoulders; Purgations were also repeated, but without success. I then applied the Plaster for the Evil, and continued it without removal the space of six or seven days, supposing thereby the Tumour would suppurate or resolve: yet it continued hard amongst the Muscles.

I repeated the use of the Emplaster; and the third or fourth day after, feeling the Matter fluctuate under it, I took off the Emplaster, applied a Caustic on the depending part about an inch in length, divided that Escar; and gave a discharge to a crude serous Matter, then dressed it with Lenients, and applied the Mucilage Plaister, with a third part of Diachylon with the Gums. After separation of the Escar, I deterged with the Vitriol-stone, and Basilicon, and red Precipitate, and at other dressings dipt them in Precipitate-powder. Having thus deterged, I incarned, and by Epulotics cicatrized it firm. During the time he was often purged, and Traumatic and Antiscorbutics were prescribed; but a Hardness remained notwithstanding. Whereupon, doubting a Relapse, I applied another Caustic, the length of that Induration; and having thereby penetrated deep into it, divided that Escar to the Quick: and by separation of the Escar, and digestion of the Lips of the Ulcer, that Hardness was breathed forth, and the patient cured, and enjoys good health to this day. *Wifeman.*

In the beginning of April, 1599, I saw at Cologne an unmarried woman of about forty afflicted with an *Abcess* behind her left Ear, which physicians call *Parotis*. She had no Fever, neither kept her bed, but all the time followed her domestic affairs. About the fourteenth day from its first appearance, the *Abcess* being grown as big as my fist, and the Matter quite ripe, but by the thickness of the Skin being retained too long, it was absorbed into the Circulation. Being then sent for, I found the *Abcess* had broke of itself some hours before I came, the patient also in a Fever attended with Fainting, Sickness at her Stomach, Loathing of Food, and want of rest, with a Pain also in her Back and Loins. The *Abcess* discharged little or nothing, nor was it possible to invite the Matter back again, so she died a few days after. Hence it is evident, that in this kind of *Abcess*, whether seated in or near the Emunctories, we ought not to wait till they break of themselves. *Hildanus.*

Abcesses under the Chin are very frequent in children, but are easily cured by the common methods.

Dangerous *Abcesses* sometimes affect the Jaws, and generally proceed from the Tooth-ach, or from some Hurt in the Drawing a Tooth.

The method of cure is fully laid down in the following observation:

An officer of the king's regiment of foot, of a sanguine and healthy constitution, marching at the head of his company in a hot Summer's day, heated his Blood, and was seized with a Pain in one of his Teeth of the lower Right-jaw. He sent to a tooth-drawer, who pulling out the Tooth, broke the Sockets off from the Jaw, according to the length of it. The Pain made great Fluxion, and required Evacuation and Revulsion by Bleeding and the like. But this being omitted, and the part affected not treated as it ought, the Pain increased, the neighbouring parts swelled and apostemated, and all his Teeth and part of the Sockets cast off. After some weeks continuance in the country, finding his disease increase upon him, he came to town, and sent for me. That side of his Head, Face and Neck were extremely swelled outwardly, so was the Cheek and Tonsil within, and the fractured Bones hidden within the Tumour. Upon a pressure with my hand on the outside of his Cheek, seeing the Matter flow into his Mouth out of a small opening near the farther part of the Jaw, I made a search with a Probe, and felt the Jaw bare. There was a necessity of laying that Orifice open, for the more easy discharging of the Matter: which being done, I employed my endeavours to take off the Fluxion and Fever he laboured under, let him blood from that Arm ten ounces, prescribed Fomentations and Cataplasms to be applied outwardly to discuss the Tumour, and inwardly an Injection, to deterge the Ulcer, of the Roots of Orrice, Tormentil, Bistort, Birth-wort, with Syrup of Roses, and a little Spirit of Wine; also a Gargle, to wash his Mouth, of the Flowers of red Roses, Plantain, Tops of Brambles, &c. with Diamoron and Spirits of Vitriol dulcified. Dr. Warner being consulted, he directed anodyne Draughts, Cordials, Julaps, Emulsions and purging Apozems. The ill Humours thus evacuated, and contempered, we hoped the outward and inward Swellings and discharge of Matter would have lessened; but they not yielding one jot to our endeavours, I laid open the Cheek from the Orifice I had enlarged forward along the Bone, with intention to take it out; but it was so shut in, that I could by no means get it out, till with watch-maker's files I cut through that Bone; then the ends thrust out into his Mouth. These I pulled out; they proved to be pieces of the Sockets. Then I felt the Jaw itself arise; and considering that if it were loose it must come out, I passed the end of my Probe under it, whereupon it rose up, having been some while loose, and was only held down by the foresaid Sockets; which being removed, the

the Jaw came away without the least Pain, or one drop of Blood, he only crying out of his Ear, as if it had made a hole through there.

The Jaw being extracted, the side was ready to fall in: to prevent, which I caused the patient to hold it stretched out with his Fingers in his Mouth, and a looking-glass held before him, that he might the better see to keep it more exactly even, whilst I, by agglutinative Powders, with the White of an Egg, made a crust upon the outside; which, with Pastebord wet in Vinegar applied over it, sat close to it, and after it was dried kept that side of the Cheek firm, and by Bandage it continued so, he helping it as hath been said above. It also was somewhat stiffened by the hard Swelling which was in the Cheek.

To hasten the Callus, I gave him daily Osteocolla, as I had read in Fabricius Hildanus's works. Whilst his Chaps were thus bound up, I continued to wash his Mouth with the Decoction above said, injected often in a day with a syringe; by which means the Ulcer was cleansed and cured, and disposed to a Callus, which grew and hardened in less than twenty days, so equal with the other, as without looking in his Mouth it could not be discerned. *Wifeman.*

ABSCESSSES about the NECK.

The Neck is not often subject to Apostematation, being more generally affected with encysted and serophulous Tumours; yet sometimes it happens, when great care must be taken the internal Jugular Vein is not wounded if the Tumour be opened by Incision; but this danger may be intirely prevented by giving a Caustic the preference; however, if it should so happen, it must be treated as is directed in the cure of wounds of the Veins and Arteries.

As the situation of the Neck frequently causes *Abscesses* there to turn sinuous, so with Compress and Bandage well adapted, those Sinusses will be healed in a little time, without the trouble of dilating. The dressings are the same with those already specified.

ABSCESSSES of the TONSILLS.

The Tonsills are often subject to violent Inflammation, to the great hazard of the patient's life, especially when they are inclined to suppurate, when the Tumour increases to so great a magnitude as to intercept the Breath almost to Suffocation.

These Tumours oftentimes have so great a tendency to suppurate, that all evacuations prove ineffectual; and it frequently happens, that when the patient is just suffocated, the Tumour bursts, and he recovers immediately: for as soon as the Matter is discharged, the Tonsills contract themselves; and by the help of a little Honey of Roses, or a Gargarism of the Decoction of Elm Bark, mixed with a little Honey, are well as it were in an instant.

To prevent these dangers, it is the common practice to make deep Incisions with a Knife, or large Lancet, into the bodies of these Tumours, which frequently is of service, by discharging the Blood and Juices before they are ripened into Matter. See *ANGINA*.

When the patient is in danger of being suffocated, the operation of Bronchotomy is often advised, but seldom made use of. The very thoughts of having their Throats cut, without considering the reasonableness and safety there is in it, throwing such a terror upon most people, that they will rather choose to die than submit to the operation. See *BRONCHOTOMY*.

ABSCESSSES of the ARMPITS.

Abscesses are sometimes formed in the Armpit by a consent of the parts in painful wounds, Tumours or Ulcers, in the Arm or Fingers; or proceed from a translation of morbid Matter in the Crisis of a Fever, and are more or less difficult of cure, as the febrile Matter is pestilential or salutary: If they arise from malignant Fevers, Suppuration comes forward very slowly; in this case, nature must be assisted with strong Cataplasms, or Cupping-glasses.

When the *Abscess* is ripe, it must be opened by Caustic, so as to prevent a necessity for dilating.

The Matter being discharged, and the part dressed with the common Digestive, it may be necessary to apply a mild Cataplasim over the dressings, secured with a Compress and double-headed Roller, and to continue the use of it as long as may be found needful; but in these cases, there never is a good Digestion, till the malignity is corrected by proper Internals.

A young man, aged about twenty years, riding a long journey in the heat of Summer, put his Blood into a ferment, which affected his bridle-hand with great pain, and produced an Inflammation, with a Tumour in that Wrist. To remedy which, he was let blood in the other Arm, and the part diseased was embrocated with Oil of Roses and Vinegar, and a Plaister of Armenian Bole was applied; and the second day after he was purged with an Infusion of Senna, &c. The Swelling increasing, with Inflammation and Hardness, the moderate repelling and discentient Cataplasim of Mallows, Pellitory of the Wall, Plantain, &c. was applied: but this patient being

of a very ill Habit of Body, the Tumour increased, and, collecting more round, shewed its inclination to suppurate; wherefore I left out the Repellents, and added white Lilly-roots, &c. by the application whereof, it suppurated in few days after. I opened it by Caustic, and discharged a proportionable quantity of Matter well concocted, and hastened the fall of the Escar by Lenients. During the Fluxion (which was in the Wrist amongst the Tendons) he complained of a Soreness in that Armpit, but took little notice of it, till, after the opening this, the pain diminishing there, he felt that in his Armpit more sore. I also felt a small Gland there, and applied a Plaister of the Mucilages, supposing that would resolve it. After the separation of the Escar, whilst I was digesting that *Abscess*, he was again purged; but the Swelling increased in the Armpit, and suppurated, and was likewise opened by Caustic, and endeavours used to digest that. But whilst the former *Abscess* cured, this latter became more crude and sinuous, and the patient was seized with a Rigor, and a Fever followed; for the cure of which he was let blood again, and purged, by doctor Walter Needham's prescription, with an Infusion of Senna in a Decoction of Tamarinds, with the addition of Manna, purging Syrup of Apples, and Syrup of Buckthorn. By the repeating of this he was freed of his Fever, but the *Abscess* would not digest three days together by any application: upon which consideration we prescribed him a Decoction of the Woods, &c. By the drinking thereof a few days, the *Abscess* digested, and healed soon after to a wonder. *Wifeman.*

The cure of these *Abscesses* must not be hurried on too fast; for in times of Contagion, or where-ever a pestilential Venom is spread abroad, and become epidemic, if the same happens by the strength of Nature to be thrown upon these Glands, the Ulcer must not be too hastily healed up, lest the malign particles to be thrown forth by these Emissaries or Outlets, being shut in, should afterwards destroy the patient; for whose security, if some part of the Ulcer, where the same can commodiously be done, was continued as an Issue for a little time, or till the sick was absolutely out of danger, it might sufficiently compensate for the trouble. If this cannot be done, Fontanels near the part may supply the place. *Turner.*

Notwithstanding the Compress and Roller, fistulous Ulcers frequently succeed these malignant *Abscesses*; for the cure of which see *FISTULA*.

Abscesses in the Arms are very frequent, not only from Contusions, but from the Crisis of a Fever, and are very often strumous.

In the first case they are seldom dangerous or difficult; but in the other frequently produce Sinusses, with Caries of the Bones.

These *Abscesses*, in good Habits of Body, are easily cured by the methods laid down in the general doctrine of *Abscesses*.

But if, from the Crisis of a Fever, they prove sinuous or carious, they must be treated as Ulcers of those kinds.

Abscesses in the Hands and Fingers are for the most part strumous; for the cure of which see *STRUMA*.

These parts, being much exposed to view, should never be opened by Caustic, on account of the Blemish they generally cause.

ABSCESSSES of the BREASTS.

If an Inflammation and Hardness in the Breasts persevering, produce an *Abscess*, which will not admit of Discussion, we are to use such medicines as will promote Maturation; tho', for our part, we have often discussed Inflammations of the Breast after their transmutation into Pus, by means of the Dionysian Plaister, which caused the Humours to perspire by invisible passages, and the Hardness to vanish. The yellow Plaister of Piscator, prepared without Vinegar, and the black one of Asclepiades, are also of good use in this case; but if all should fail, we must have recourse to surgery. All parts of the Breast will safely admit of an Incision, if the subject Matter be putrefied, except those near the Nipple, which must be treated with a Lunar Section, so as that the bottom of the *Abscess* may be laid open, and yet the Nipple preserved; in men, for the sake of beauty; in women, not only for beauty, but that the power of suckling may not be destroyed. After the operation the wound must be dressed with Lint; but you must avoid, by all means, the stuffing in too much of it, which is the ready way to induce a Fistula. The third day after this, you are to think of Suppuration; and when this is performed, Cleansers will come in use, and after them Dryers and Healers. For these two last purposes the yellow Plaister of Piscator before mentioned without Vinegar, and the yellow one of Galen for malignant Ulcers, are excellent medicines. On these must be laid a Sponge squeezed out of Wine. The black Plaister, prepared of Darnell, is also a good remedy, for it evacuates and glutinates; or bruise Earthworms with Polenta, and apply them. *Actius, Tetr. 4. ferm. iv. cap. 39.*

Abscesses in the Breasts, particularly of women, are very frequent, and generally proceed from too active and vigorous a Ferment in the separation of the Milk, tho' a Contusion sometimes is the cause.

In order to bring the Tumours to a more speedy Suppuration, Heister advises to apply a Plaister of Diachylon with the Gums, or of Henbane, or, what he apprehends more conducive to this end, the following Cataplasms:

Take of Wheat Flower half an ounce or an ounce, and with a sufficient quantity of Honey make a Cataplasma; to which having added a little Saffron and Milk, spread it upon double cloths, and apply it hot to the Breasts, and renew it often.

Or take of Wheat Flower four ounces,
Gum Galbanum dissolved in the Yolk of an Egg one ounce,
Vinegar three ounces;

These must be boiled to a Cataplasma, with a sufficient quantity of Water.

Or the Cataplasma of Barm, Honey, and Venice Soap, before-mentioned, from the same author.

These Apostemations generally bursting at the top, produce sinuous Ulcers very difficult of cure.

But when the Tumour is so ripe as to want opening, a Caustic must be applied to the most prominent part, yet a little depending; which being done, and the Eschar separated, if a good Digestion succeeds by the use of the common applications, with gentle Compress and the Scapular Bandage with the Napkin, and there is no Hardness or Pain, the cure is completed in a few days. On the other hand, if the Fluxion continues, more *Abcesses* may be expected, which generally form Sinusses sometimes very difficult of cure.

If the Sinus is superficial, it must be laid open with the Knife or Scissars; but if deep in the Glands, it is advisable to try which way nature points for a Discharge, by plugging up the Orifice with a large Tent, and continuing it there for two or three days, that the inclosed Matter may either produce a fresh Apostemation in a more depending part, or instruct where to make another with advantage. After the separation of which the Ulcer may be incarnated with Liniment, and cicatrized with Ointment of Tutty, or dry Lint.

In these *Abcesses*, Fungusses sometimes greatly impede the cure, and prove very troublesome. See FUNGUS.

A Varix also may sometimes prevent a cure. See VARIX.

A maid of about twenty years old, of a gross body, receiving by accident a blow on her right Breast, it swelled, and grew hard and painful. After several applications, the Hardness and Pain rather increasing, she, suspecting a Cancer, came to me. I viewed it, but saw no symptoms of it. I embrocated it with Oil and Vinegar, and applied a Plaister of red Lead with Soap; and the day after let her blood, and then purged her with Whey, Manna, and Cremor Tartar, by which the Hardness was seemingly resolved for some time: but she being irregular in her appetite, it swelled again, as when I first saw it. Upon which consideration I applied Emollients; and seeing the Tumour increase, and she impatient at the sight of it, I applied a suppurative Cataplasma, of the roots and leaves of Marsh-mallows, white Lillies, &c. By the continued use of it in a few days it suppurated well, and I opened it by Caustic in the declining part, and discharged a large quantity of Matter. I dressed the *Abcess* with Lenients, and continued the use of the Cataplasma till the Eschar separated. Then I deterged with Paracelsus's Mundificative, and applied the Mucilage Plaister, and shortened the Tent. The Orifice growing less, and somewhat of the Hardness yet remaining, I put in a short Cannula of Lead, and kept the Orifice open till the Hardness was totally resolved, and that it mattered very little, or not at all; then threw out the Tent, and applied a Pledgit of Ointment of Pompholix, and permitted it to heal, which it did in few days. This was a pure Phlegmon, and lay deep in the Breast, and owed its speedy cure to the perfect Suppuration made in it before the opening. For otherwise, such *Abcesses* in large Breasts do frequently terminate in sinuous Ulcers, and grow callous, by reason of their laxity and want of natural heat. *Wifeman.*

One having been troubled with a sore Breast about a year after child-bed, it growing more swelled and ulcerated, she sent for me. It was hard, without Inflammation or discolouring in the Skin, and discharged a well-concocted Matter out of the Nipple, and some small openings near it. I wondered what should be the reason it did not cure: at last, in handling the Breast, I felt a Varix lying under the Skin; it felt like net-work. I dressed the Ulcer with Basilicon sometimes, and at others with Ointment of Tutty; applied a Plaister of Armenian Bole over the Breast, with Bandage to support it; and advised the wearing of fine Tow, sprinkled with Cerufs, under that Armpit; by which method it was afterwards cured in a month or thereabouts. *Wifeman.*

Inflammations of the Lungs and Pleura, frequently produce *Abcesses* in the Breast and upon the Ribs, which often turn fistulous, and cariate the Bones underneath.

In these critical Translations the danger is more or less, according to the quantity of Matter discharged, it being sometimes so great, as to bring on an incurable Consumption.

If a Tumour appears on the Breast or Ribs, preceded by a Cough and Difficulty of breathing, the Suppuration must be forwarded, as fast as possible, by some of the suppurative Cataplasms; which must be continued till the Tumour is fit to be opened, when a Caustic must be applied, and the Matter discharged. For want of this assistance, it sometimes bursts inwardly, and falling upon the Diaphragm, produces such disorders as may make the operation of the Empyema necessary. See EMPYEMA.

When the Discharge is very large, a Cannula of Lead may be proper to keep the Orifice open; for Fungusses will frequently arise, if not prevented by this means, and do a great deal of mischief, by stopping up the Orifice, and thereby preventing a Discharge of the Pus.

The Cannula must be continued till the Matter is of a good consistence, and little in quantity; when it may be thrown out, and the Ulcer incarnated and cicatrized by the common methods: Or a Pea may be substituted in its stead, and the Ulcer kept as a Fontanel, as long as you think proper.

If any of the Ribs should be carious or bare, which sometimes happens by the constant pressure of the Cannula against it, an Exfoliation, by any applications, is unnecessary, Nature seldom wanting any assistance, if the Ulcer is kept well digested. *Wifeman.*

The Bandage is the Napkin and Scapular.

Some while since I was accidentally in the country, and was shewed, by a chirurgeon thereabout, an apostemated Breast, the biggest I ever saw. The patient was a woman about forty years old. She had a Cough, and was oppressed with Difficulty of breathing. The surgeon opened her Breast in the declining part, and discharged a proportionable quantity of fetid Matter. She was somewhat relieved by it, but it penetrated into the Breast, and the large Discharge of Matter soon wasted her. *Wifeman.*

ABSCESSSES of the BELLY.

Abcesses of the Belly are generally the effects of a violent Contusion, and are subject to great Defluxion from the laxity of the parts, especially in scorbutic and ill Habits of Body, where the Matter is apt to insinuate itself amongst the circumjacent Muscles, and to form sinuous Ulcers difficult of cure, as we cannot make so good Bandage on them, by reason of their figure, situation, and perpetual motion, as elsewhere may be made. *Wifeman.*

When the Tumour is ripe, let it be opened by Incision on the most depending part; and, the Matter being discharged, the Ulcer may be dressed with Pledgits armed with Liniment, or Balsam of Turpentine, mixed with a little Oil of St. John's Wort, with a Plaister of the Mucilages spread upon a rag over it, and the whole secured with the Napkin and Scapular.

A Fomentation of Wormwood leaves, tops of Elder, Marsh-mallows, Centaury, and Chamomile flowers, will greatly assist Nature in producing a good Digestion; the Belly being bathed with it half an hour at each dressing.

The cold air is very prejudicial to these Ulcers; therefore they must be guarded against it, by having a chafing-dish of Coals near the patient when he is dressed.

If Sinusses should be formed, they must not be dilated the whole length, but the Matter discharged by Incision in the most depending part. The upper parts of the Sinus will be united by good Compress and Bandage, and the cure of the Ulcer completed by the ordinary methods.

In the year 1597, a lusty Savoyard, about forty years old, being afflicted with a great Pain in his right Side, at the extremities of the false Ribs, came to Lausanne and sent for me, and Albertus Roscius, a very noted physician there, to consult about his case. Upon examination, we could not perceive the least Tumour, but felt a Hardness deeply seated amongst the Muscles. His Pain, accompanied with a small Fever, we found was caused by the compression and extension of the Peritonæum. After gently purging him, we applied Fomentations, Cataplasms, Ointments, discutient, resolvent and anodyne, for some days, but without effect. Hence we entertained some hopes that the Hardness might be dissolved, as I had known formerly to have happened in a case of the like nature. A Decoction of Guajacum, Sarsaparilla, with some hepatic Herbs therefore was prescribed, and given for some days: But, instead of being dissolved, in a few days Matter flowed about the Region of the Liver, between the Abdominal Muscles and the Peritonæum, and in such quantity, that by the pricking Pain and Pulsation it occasioned, we had sufficient knowledge where to make an Incision for the Discharge of it; which we agreed should be done without delay, tho' nothing appeared outwardly, lest the Matter should penetrate the Peritonæum, and fall into the Cavity of the Abdomen. The operation I happily performed in the presence

presence of the said Dr. Roscius, Claudius Mario, and others; and discharged a great quantity of Pus. The Fever, Pain, and Fainting went off gradually. The Ulcer we were obliged to keep open some months, on account of the great quantity of Matter which flowed out. In the mean time, by observing a good Regimen, and purging between whiles; together with the use of the Decoction of the Sudorifics and hepatic Herbs, the parts gained strength, and the patient, by the blessing of God, was perfectly cured. *Hildanus, observ. xxxviii. tent. 2. p. 115.*

ABSCESSSES in the GROIN.

Abscesses in the Groin, like those in the Armpit, frequently arise by a consent of parts, in painful Wounds and Ulcers. They are sometimes the Crisis of a pestilential Fever, and very often are venereal.

A Translation of Matter from an *Abscess* in the lower parts of the Belly, in the Glands, and other parts near the Iliac Branch, may also cause an *Abscess* in the Groin very difficult of cure: but, if these *Abscesses* suppurate kindly, and are timely opened, they are not dangerous; if the contrary happen, they may degenerate into Fistulas, and then are not without danger. *Wiseman.*

Fallopian says, that Blood extravasated in the Cavity of the Abdomen, will fix on the Inguina, and there form an *Abscess*.

When Matter is formed, and begins to fluctuate, if the Tumour is kindly and not venereal, a Knife is preferable to the Caustic for the Discharge of it. The Incision must be oblique; and great care must be taken that the point of the Knife descends not so deep as to wound the Inguinal Artery, which would endanger the patient's life.

If a Flux of Blood should happen from a division of some small Vessels, after the Matter is discharged, let the Wound be dressed with some of the restraining Powders, with Dossils of Lint tied with a thread, pressed down pretty hard on the wounded Vessels, and upon the Lips, Pledgits armed with the common Digestive. A Plaster of the Mucilages over all, and the whole secured by Compress and Bandage.

The cure of these mild *Abscesses* is completed by the common methods in a few days.

If the *Abscess* is the Crisis of a Fever, it must be opened by Caustic, and the Wound must be kept open till Nature has freed herself of her disorder.

A discutient Fomentation ought to be always ready at the dressing of these critical *Abscesses*, for reasons before-mentioned.

The use of the common Detergents are seldom sufficient here, without the addition of red Precipitate; which must either be sprinkled in the Ulcer, or mixt with Basilicon or Arcæus's Liniment, as is thought most proper.

This seldom fails of producing a good Digestion; and is so good a Detergent, that by proper management in the mixing it, there will seldom need any thing else but dry Lint to compleat the cure.

The method of curing *Abscesses* from a Translation of Matter from the Belly, is much the same as the foregoing, and for the cure of venereal *Abscesses* in the Groin. See BUBO.

ABSCESSSES in the PUDENDA.

Abscesses are sometimes formed in the Lips of the Pudenda in women, which, if not venereal, generally yield to the common methods. They may be opened either by Caustic or Incision. See ALÆ.

ABSCESSSES in the SCROTUM.

The Scrotum in men is often subject to *Abscesses*, from Contusion or the Venereal Disease.

In the cure of those by Contusion, care must be taken not to open them by Caustic, lest the native heat of the part should be destroyed, and a Mortification be the consequence. Regard also must be had to the dressing these *Abscesses*: no greasy applications must be made use of, lest a fœtid Ulcer should be produced; but Balsams of Peru, Capivi, or Arcæus's Liniment, are all necessary. A Fomentation also of the discutient Herbs must be used every time the Ulcer is dressed, till there is a good Digestion, and then the common methods may effect the cure.

For the method of treating venereal *Abscesses* in these parts, see HERNIA HUMORALIS.

ABSCESSSES in the BACK and LOINS.

The Back and Loins are subject to *Abscesses*, in which the Matter is generally seated so deep, that the Bones are often sufferers before it can be felt, with any certainty, to fluctuate; and, for want of timely assistance, sometimes bursts inwardly, to the great danger of the patient's life.

To remedy these inconveniences, if, by the prominence of the Tumour or other symptoms, Matter may be judged to be formed, however deep, a Caustic must be immediately applied, and continued till the remission of the Pain it causes certifies its effect; and then the Escar must be divided, which is sometimes near an inch in thickness, and the Matter discharged.

The first dressing must be dry Lint, and over this Pledgits armed with common Digestives, covered with a suppurative

Cataplasm; and the whole must be secured by the Napkin and Scapular. A discutient Fomentation must be made use of, if there is not a good Digestion.

If a fetid Ichor discharges, or the Bone is felt bare or ragged, the Ulcer must not be healed till an Exfoliation is procured by Tincture of Myrrh, Euphorbium, or Spirit of Vitriol; which last requires to be used with caution, and the sound parts must be well defended from their Acrimony, by applying Dossils of Lint over them, so as to keep the Lips of the Ulcer distended, and the Bone bare and dry. *Wiseman.*

Injections must never be used here, they oftentimes causing Sinusses very hard to be cured. Tents may be sometimes necessary to thin the Integuments, for the more easy dilating, if required.

The actual Caustery and Rugine, tho' often found to be of great service in exfoliating rotten Bones, yet the Vertebrae of the Back will admit of neither. *Wiseman.*

If, by the use of the Fomentation, desquamatory and other applications, with good Bandage, the Ulcer digests well, is free from callous Lips, and Nature seems forward to fill the cavity with new Flesh, care must be taken she does not do it in too luxuriant a manner, by the application of proper Detergents, such as Precipitate mixed with Digestives, as is said before; by the use of which, and afterwards dry Lint, or white Ointment, the cure in a little time will be completed.

But great care must be taken that Internals are not forgotten, as they are so highly necessary.

Strumous *Abscesses* appear frequently in these parts; for the cure of which see STRUMA and SCROPHULA.

Mr. T. P. of a corpulent habit, and about fifty years old, was seized with an Inflammation upon his Back, near the Spine, without any preceding Fever, attended with almost intolerable Pain. Mr. ———, a noted surgeon, was sent for, who, upon examination, finding very little Tumour, attempted the cure by bleeding him plentifully, and embrocating the part with Oil and Vinegar. His Body was opened by a gentle Cathartic, given that evening. The next day the Pain and Inflammation being increased, and the Tumour a little elevated, attended with a violent Pulsation and symptomatic Fever, the dressings were altered. An emollient Fomentation of Marsh-mallows, tops of Elder, Melilot, and Chamomile flowers was used; and afterwards the Tumour covered with a Cataplasm of white Bread and Milk, with a little Linseed Oil: Upon which, stronger signs of a Suppuration appeared the next day, by an increase of his Fever, Pain and Pulsation.

The Fomentation was then laid aside, and the Pultice changed for one of white Lilly-roots, Linseed and Fœnugreek-seeds powdered, roasted Onions, and Hogs-lard; by the application of which, Matter seemed to be formed, but lay very deep under the Muscles.

Being fearful the Tumour would burst inwardly, it still being very hard on the outside, a Caustic, prepared of the Lapis Infernalis and black Soap, was laid upon the part; and in about two hours the Escar, above an inch in thickness, and as big as a half-crown, was divided, and about half a pint of fetid Matter discharged. Upon examining the Ulcer with the Probe, one of the Processes of the Spine felt ragged: Dossils of dry Lint, secured with threads, were pressed to the bottom; and Pledgits armed with Basilicon, and Oil of Turpentine, applied to the Lips, with the Cataplasm upon them; and the whole was secured by the Napkin and Scapular with proper Compress.

An anodyne Draught was given that night to quiet the Spirits, so much fatigued by the operation. The next day a discutient Fetus of Wormwood, Centaury, Rue, and Chamomile flowers was used, and the same dressings renewed, after having cut away great part of the Escar. Upon dressing the third day, Matter was perceived to bag a little in the depending part; to cure which, a larger Compress was applied, and rolled on very tight; notwithstanding which, the Sinus was increased about two inches below the Ulcer, when it was judged proper a Spunge-tent should be applied, for the more easy dilating.

Two days after the Sinus was divided with a pair of strong Scissars, and dressed with Liniment with the other Ulcer. In about three weeks a small scale of the Bone came away; during which time a Fungus often arose; but by now and then sprinkling a little Precipitate upon it, it was kept down, and the Ulcer, in about a fortnight after the Bone exfoliated, was incarnated, and cicatrized with the common applications.

During the cure he was often purged with fifteen grains of Calomel in a Bolus, over night; and an ounce of Syrup of Buckthorn, mixed with ten grains of Jallap Powder and half an ounce of Milk Water, in the morning; and had afterwards a Diet-drink made, by the use of which he has since enjoyed a good state of health.

Abscesses in the Hips, Buttocks, and Rump, are very frequent, and are seldom dangerous, unless in ill Habits of Body, when they

they are very apt to turn sinuous; or near the Fundament; where a Fistula is the common consequence; or sometimes a Gangrene, if the Fat be not speedily digested out. *Wifeman.*

The Caustic is preferable to the Knife in these *Abscesses*, especially when they are very large; and in good Constitutions, a cure is generally effected by the common methods; but where they prove difficult, must be treated as is laid down in the following observations:

A gentleman of about fifty-six years of age, standing long in the cold to see some extraordinary shew, was taken with a Pain above his left Hip, and the second day after he sent to me for an Emplaster. The messenger not telling me the name of the patient, nor where he lodged, I sent him an Emplaster of Bole, proper to resist and defend a part from Fluxion. The fourth day after he sent to me for another Emplaster, signifying to me that his Pain was much increased; and two days after sent for me. I went, and saw a large Tumour lying upon the Ilion backwards, with great Inflammation and Hardness, with all the symptoms of a Phlegmon near its state. I directed a Cataplasm; to be made of the tops of Mallows, Marsh-mallows, Wormwood, Elder and Melilot flowers, Linseed and Fœnugreek, Barley meal, with an addition of Honey, Oil of Chamomile, Yolks of Eggs and Saffron; and in the interim let him bleed; and advised a Clyster to be administered that afternoon. If this person had been of a temperate life, and been let blood when he sent for the first Emplaster, this Tumour might have been happily repelled; but it was now too late to discuss it: yet I repeated the application of that Cataplasm till I saw it more collected, and then I hastened Suppuration by one of the milder Suppuratives; by the use of which the Tumour was more collected, and raised into a Cone; and by its pale colour and thinness of the skin, gave an assurance of a perfect Suppuration. Then I applied some of the milder Caustic, with a simple Diachylon Plaister over it, and the Cataplasm over all. The next day I took off the dressings, with design to divide the Escar; but it was done to my hands, and a large quantity of well-digested Matter was discharged. I fomented the *Abscess* with a Stuph wrung out of Milk, and dressed the Escar with a Pledgit of Basilicon, dipt in Oil of Roses; and continued the application of the Cataplasm. Thus in few days the Swelling abated, and the Escar separated. I then endeavoured Deterfion with Paracelsus's Mundificative; but the *Abscess* being large; and the Suppuration in the middle, and the part not very capable of Bandage, there remained a large hollowness, which put me upon a necessity of laying it more open, for the speedy effecting the cure; which I did with a pair of Probe-scissars. This work is necessary in such large Phlegmons; and therefore it is, I suppose, that Sennertus places his chapter of Sinusses next to that of a Phlegmon. After I had made this Incision, I dressed it with the Digestive of Turpentine with the Yolk of an Egg, &c. and having digested it, I incarned, by adding Powders of Orrice and round Birthwort roots, and Sarcocolla, &c. to the Digestive; and by the help of the Vitriol and Alum stones, Ointment of Tutty, and Plaister of Chalcities, I cicatrized it. *Wifeman.*

I was sent for to a gentleman about thirty-six years old, much emaciated, and of a very ill Habit of Body; he was diseased with a painful Tumour on the left side of the Anus, reaching from the Os Coccygis to the Perinæum, of a dark-red colour, hard in the circumference, but along the Verge of the Anus it felt soft; it seemed to arise from under the Anus; and to be an ill-conditioned Tumour. I applied a Caustic upon the soft part, according to the length of it, near the Anus; and some hours after divided the Escar, and gave vent to a fetid brown Matter. I dressed the Escar with Basilicon and Oil of Turpentine, and applied a Cataplasm over it, of Bean-meal, Powders of Linseed and Fœnugreek, Chamomile flowers, Elder and red Roses, decocted in Oxymel; as the Escar separated, the Ulcer shewed itself putrid. I fomented it with a Lye, wherein good store of Wormwood had been boiled, and dressed the Ulcer with Paracelsus's Mundificative, with red Precipitate, and Alum, and the Escar with Lenients, &c. as before.

This patient had laboured some weeks with a Diarrhœa, which after the Escar was separated, flowed into the Ulcer, and much disturbed our cure; therefore I caused an Injection to be made of a Decoction of Wormwood, St. John's Wort, Scordium, Centaury, &c. to which I added Spirits of Wine, Honey of Roses, and Egyptian Ointment: and, that the Excrements or Sordes might not be retained, and render the Ulcer more sinuous, I cut it open the whole length above and below, and filled it up with red Precipitate, with the Mundificative upon Dossils, and with Plaister and Bandage retained them on. Then prescribed him a Decoction of Sarsaparilla, &c. also an Electuary of Conserve of red Roses, Diascordium, and toasted Rhubarb, &c. which he took once in four hours, and thereby stopped his Looseness. The Ulcer not detaching

with the former applications, I dressed it with Ardens Powder; and defended the Lips with Basilicon, and a Plaister of Bole over all. Thus, in two or three dressings, I consumed the Foulness; then dressed it with Paracelsus's Mundificative and Precipitate; and applied Stuphs of Tow over it, prest out of red Wine, wherein had been infused red Rose flowers, Balauftins, &c. and afterwards prescribed him the taking of Calomel, a scruple, every other night. Thus the Ulcer deterged. I incarned it with Powders of Aloes, Blood-stone; Myrrh, Sarcocol, round Birthwort roots, Orris roots, and Lapis Calaminaris, made up into the form of an Ointment with Honey of Roses. While this was incarnating, and in some parts cicatrized, a Sinus appeared, running under the Verge of the Anus about half an inch. I applied a Tent, armed with Paracelsus's Mundificative; and after it was deterged, left out the Tent, and it cured. But then a small Sinus discovered itself on the other side of the Anus: Upon sight thereof, lest more mischief should fall upon those weak parts, whilst I attended the cure of that sinuous Ulcer under the Anus, I dilated it, and snipt it open with a pair of Probe-scissars, into that great Sinus; and from that time the Ulcer cured, and I thought my work had been done; but, within a few days after, another Sinus appeared near the Verge of the Anus, on that side where the former was. It much discouraged the patient; but it lying so convenient for discharge of the peccant Matter, I continued it to further consideration; it proceeding from the meer weakness of the part, I advised the keeping it clean, and to wear a dry Pledgit of Tow over it. It was kept with much ease, and the patient enjoyed his health very well many years; and at length it cured of itself. *Wifeman.*

As Phlegmons are subject to Mortification through unseasonable application of Medicaments in time of their state; so also, in fat Bodies, they are apt to gangrene after opening, if that Fat be not speedily digested out. Thus it happened to a person labouring with a Phlegmon on the Os Sacrum. After the Discharge of Matter, the Ulcer became crude and gangrened. Another surgeon was consulted, who scarified the *Abscess*, and by his warm applications, supposed he had extinguished the Mortification; but it appearing otherwise, I was fetched, and saw the Lips and parts within gangrened and glecting. We scarified the Lips; but finding them to be gangrened more within than without, we pared them off round, then scarified the *Abscess* within, and cut out the putrefied Fat, and with an armed Probe, dipt in Oil of Cloves hot, cleansed the *Abscess*, and filled the Scarifications with red Precipitate. We then dressed up the *Abscess* with a Mixture of Basilicon and Oil of Turpentine, and applied Cataplasms and Fomentations, as is usual in such cases. The next day we came, provided with actual Cauteries, but found the *Abscess* warm, and disposing to Digestion in the Lips and fleshy parts; and from that time it digested well. But in the Basis of the Ulcer, where the Mortification had reached to the Periostium, the Slough separated more slowly; but by the warm application of Lenients, it came off, and the Ulcer happily incarned. *Wifeman.*

AN ABSCESS OF THE ANUS.

After an Inflammation, sometimes there happens an *Abscess* about the Anus; in which case the Putrefaction usually extends itself all around, because of the abounding Heat and Humidity of the parts. Whence the surgeon is under a necessity of using Resection, and the operation is subject to be succeeded by a Fistula. Wherefore, tho' in simple *Abscesses* the cure be easy enough; yet, when the Disease is great, and an Amputation made round the Anus, while we endeavour to cicatrize the Wound, there usually happens a Constriction of the circumjacent parts, and an Obturation of the Passage of the Anus. For this reason it will be proper, when we undertake the cure, to put some Lint, first moistened with Tetrastarchum, or some other fit Solution, into the Fundament; and while the cure proceeds, it will be no less proper to put up a convenient Tin Cannula into the Passage, which must be slender, round, and polished in the part that enters; but wide and spreading in the rest, and be bored quite through for the Flatus to pass that way. This Pipe may be smeared with some healing Medicine, or Samian Earth and Wine, or with Cerufs; and let a Bolster or some Wool be applied to the place, and a proper Bandage be made. The Pipe must not be taken out till the cure is perfected. *Aetius, Tetr. iv. ferm. 2. cap. 9. From Leonidas.*

ABSCESS IN THE LOWER EXTREMITIES.

Abscesses in the Thighs and Legs happen often; and if they are only Terminations of inflammatory Tumours in good Habits of Body, yield to the common methods of cure.

But if from the Crisis of a Fever, they often degenerate into sinuous Ulcers with Caries of the Bones.

They are oftentimes Strumous, and must be treated accordingly. See STRUMA.

These *Abscesses* often run into Sinusses the whole length of the Limb; when it so happens it is by no means advisable to lay the

the Sinus open as far, but to make Perforations or Orifices by Knife or Caustic at proper distances, when the Matter being let out the other parts will heal with good Compress and Rolling.

The laced Stocking is of great use in these *Abcesses*.

In the year 1652 passing from Cheshire into the County of Rutland, taking North Luffenham in my way to London, I was desired there to visit a Freeholder, who had laboured under a Fever, and had been long bed-ridden by reason of a grievous pain in his Thigh, which was supposed the Crisis of that Fever. I saw him much emaciated, and his pained Thigh was somewhat the bigger of the two, but it retained its shape without any visible Tumour, Inflammation or Hardness; nor was the Fluctuation so distinguishable as that I could positively say there was Matter, it lying so deep and equally in the outside of it; but, suspecting Matter, I opened it on the outside according to the length of the Member, and feeling my Knife in the cavity, I made the aperture large, and discharged a putrid Matter like the Lees of Beer. After I had discharged a porringer full, I dressed the Opening with Basilicon upon a Tent, with an Emplaster of red Lead over it, and with Compress and Bandage rolled it up. The next day finding the patient relieved, and the Matter plentifully discharged, I fomented the Tumour with a Decoction of Wormwood, Chamomile Flowers, red Roses, and such like; and making a search with my Probe, found the Bone bare a great length. I enlarged the Opening to make more way for the Matter; and the better to apply my Medicines to the Bone, then dressed it up as before, and against the next day made an Injection of the tops of St. John's Wort, Centaury, Roots of the greater Comfrey, Bistort, Tormentil, Gentian and Orris; to which strained liquor I added Syrup of Roses, and cast some of it daily in, warm, to deterge the Ulcer. His body was kept soluble by Clysters of Milk and Sugar, and his spirits relieved by a morsel of London Treacle with Conserve of Wood-Sorrel. I also ordered him a Julap made with a few Strawberry leaves and roots, a little Ivory and a Crust of Bread, infused a stick of Cinnamon in the strained Decoction, put in a few drops of Spirit of Sulphur, and sweetened it with Sugar. His Diet was Oatmeal Caudle, Broth, Grewels and Figs; and as his appetite increased we allowed him a more liberal Diet. Although the Opening was large, and the Thigh very bare of Flesh, yet by reason of the distance the Bone lay from the Opening, and the hollowness of the Ulcer, it was not possible to make any applications to the Bone by Medicaments to exfoliate it, that should not be offensive to the Ulcer, if they were so powerfully drying as the Bone required. Therefore I caused an actual Cautery to be made at the next smith's, and dried the Bone that way, and the while continued the above-said method of dressing, keeping the Orifice moderately dilated with Dossils pressed out of the Injection; then by good Compress and Bandage, squeezed out the Matter, inasmuch as it lessened daily, the more remote cavities agglutinated, and the Ulcer was like to cure if the Caries in the Bone did not obstruct it. That it might not, I got the Cautery made in the form of a wedge, but thicker, to retain heat; and having fitted it with a Cannula, placed it upon the Bone according to the length of the Caries, passed the Cautery through it to the Bone, and repeated it again and again, cooling the Cannula each time in a dish of water near me; then I covered the Bone, and dressed the Opening with Dossils dipt in a Mucilage of Barley and Comfrey Roots, fastning a thread to those Dossils which I conveyed first in towards the Bone, the better to bring them out again, and applied Galen's cooling Ointment outward upon the Ulcer, with a Plaster of Galen's Cerate over all. This way of dressing I continued daily till the Excoriation was healed without; then I repeated the use of the former Injection, adding red Rose flowers, Balsams, and Sunach, with a little Alum, and by Compress and Bandage hastened the Union of it within, leaving the Exfoliation of the Bone to Nature. While I staid in that country, the Cavity filled up, and by the well digested and little Matter the Ulcer seemed near cured; and I was afterwards informed that the patient followed his husbandry one or two months after. The Exfoliation was here insensible, as it most frequently happens, the scales moulder away, and discharging with the Matter. *Wifeman.*

ABSCESSES OF THE FEET.

Abcesses are sometimes formed in the Feet, and are generally the effects of a bruise upon those parts.

Bleeding in the Foot may cause an *Abcess* by a Nerve or Tendon being pricked in the operation, or by the translation of a Tumour from another part.

But strumous *Abcesses* are the most dangerous, the Bones seldom or never escaping free.

Abcesses in the Feet are generally very difficult to cure, from their situation, as Sinusses are perpetually forming in the Intestices of the Muscles, and sometimes cariate the Bones.

In opening these *Abcesses* the Caustic is preferable to the Knife,

as there is no danger of wounding either Nerves or Tendons, which by the use of the Knife may sometimes happen, and create excessive pain.

The method of curing these *Abcesses* with all the bad symptoms attending, is contained in the following observation.

A weak sickly child, about ten years of age, was recommended to my care by Dr. Mapletost; she had a strumous Tumour suppurated on the right Foot, amongst the Tendons and Bones leading to the two lesser Toes. I suspected them corrupted; but there being a necessity of opening it, I applied a Caustic proportionably, and gave vent to an albuginous Matter, and felt those Bones bare from the Tarsus to the first joint of the Toes. I fomented the part affected with a discutient Decoction, and dressed the Escar with Lenients, to hasten separation of the Slough; and as it began to separate, I deterged with red Precipitate and the Vitriol-stone, making way through the luxuriant Flesh to the Caries. Then with Dossils, dipt in Honey of Roses and Spirits of Wine, and prest out, I dressed the Bones, and kept the Ulcer so dilated, as to see the Bones so far as they were carious. But in the applying my Dossils, they pressing upon the Tendons, rendered the Ulcer painful, and subject to great Defluxion of a thin serous Matter, and threatened worse mischief. To remedy which I cut off those Tendons, dressed up the Ulcer with Digestives, and applied Refrigerants externally to restrain the Fluxion. At the next dressing, finding the Tendons contracted, and the Bones more easy to come at, and seeing the Exfoliation of them by Medicaments like to be a tedious work, the Matter having made its way under them, threatening Apostemations in the sole of the Foot, I resolved to attempt them by actual Cautery. To which purpose I dressed them with Dossils of Lint, to dilate them more for my view; and the next day I burnt them the whole length: Then with my Forceps pinched them to pieces, and pulled those broken bits out; after which I cleansed the Ulcer, and applied my Dossils pressed out of a mucilaginous Decoction between and over the ends of the remaining Bones, dressing up the Ulcer with Digestives, and applying externally Compresses dipt in Vinegar, wherein had been infused Salt-petre, Myrrh, &c. over which a laced Sock was put on. Thus I restrained the Influx, and pressed forth the Matter from its several cavities: yet I was necessitated to make afterwards an Apertion through the sole of the Foot, and to lay open the Ulcer beneath the Ankle, for the readier discharge of Matter. I continued the application of Dossils, pressed out of Spirits of Wine, to the ends of the Bones, till a Callus thrust forth, filled up the void space, and supplied the want of the Bones. During this work, the patient was afflicted either with a Cough, Looseness, or Vomiting; in all which cases Dr. Mapletost assisted with various prescriptions, and contempered the acid quality of her Blood; after which, by good nourishment, the child recovered her Strength. She being thus, at length, disposed to a fair way of recovery, the Ulcer near cicatrized to the Bones, and there being nothing more to do but to keep it open with dry Dossils and a Pledgit of Diapompholygos, with the usual Bandage; I, by degrees, left it to her mother to dress, and saw the child afterwards upon her Feet; and at length she recovered. And thus, time may be said to contribute much to the cure of this disease; but without the surgeon's careful attendance, they miserably languish, and die: for Amputation, in this disease, signifies little; the Ulcers rising with Caries in one part, while you are extinguishing them in another. *Wifeman.*

ABSCESSES IN THE HEEL.

The Heel is subject to *Abcesses*, but generally they are strumous; yet a prick with a rusty nail is sometimes the cause.

There requires no more in the cure of these than after the opening to keep the Ulcer open with Dossils, or the Spungent, till we are satisfied whether the bone is bare or carious; if it is not, they easily incarn and cicatrize by the common applications.

But if it should be carious, there is nothing so good as the actual Cautery past through a Cannula, which will save the trouble of waiting some weeks for a Desquamation by the common methods. By this operation the Caries seldom comes off in a scale, but moulders and comes away with the Matter insensibly. *Wifeman.*

The Sock with the Roller is of good service in these *Abcesses* to keep the Dressings on.

As most *Abcesses* in the Joints are strumous, for their cure see STRUMA.

ABSCISSIO. ANSCISSIO. *Ἀποκοπή.* This is used by physicians in many senses, but the most common signification is to express the dividing any corrupted and useless part of the Body from the sound, by a sharp instrument. It is principally applied to soft parts of the Body, for in the Bones it is called Amputation, though Abcission is sometimes applied to small fragments of Bones, which being almost divided either by Exfoliation or Fracture, require to be taken away by Abcission, or to be cut off as useless or pernicious.

It is not confined to corrupted Parts, but is sometimes apply'd to the sound, when, by reason of its Luxuriancy, it is curtailed. Thus there is said to be an *Abscission* of the Uvula, or Prepuce.

Sometimes *Abscissio* signifies the sudden Termination of a Disease in Death, before it arrives at its declining State.

Abscissio also sometimes expresses an utter Depravation, or Loss of the Voice. And in this Sense *abscissa Vox* is used by *Celsus*.

ABSCONSIO. It signifies a Sinus; but it seems to mean a Sinus that is unnatural, and from a morbid Cause, whereas Sinus is applied to many natural small Cavities in the Body, but particularly those of the Pudenda, Uterus, and Brain.

ABSINTHITES VINUM. *Dioscorides*, describes several Ways of making the *Vinum Absinthites*. The best Way, in the Opinion of *Fuchius*, is to bruise an Ounce of the best Wormwood, and, tying it up in a thin linnen Rag, infuse the same in nine Gallons of Wine. Then put Must [Wine never fermented] to it, and let it work, leaving a Hole open, that it may not burst the Vessel.

Dioscorides, lib. v. cap. 49.

The Virtues of the *Vinum Absinthites*.

The *Vinum Absinthites* is good for the Stomach, excites Urine, accelerates Concoction, relieves such as labour under Distempers of the Liver, the Stone, or Yellow Jaundice, removes a Nausea, and helps Infirmities of the Stomach. It is effectual also for an inveterate Distension of the Hypochondria, and all Inflammations; kills round Worms, restores the suppressed Menses, and is an Antidote against the Poison of the white Chamæleon, provided it be drank in a large Quantity, and returned by Vomit.

ABSINTHIUM, WORMWOOD. [*Ἀψίνθιον*, *q. d. unpleasant*, of *α* privative, and *ψίνθος*, which *Hesychius* interprets *τέρεψις*, *Delectation*; others will have it *Ἀπλίνθιον*, *i. e. not portable*, from *α* privative, and *πίνω*, *to drink*, on account of its Bitterness; others derive it of *ἅπτειν*, *i. e. to touch or handle*, by Antiphrasis, because no Animal touches it, by reason of its extreme Bitterness.] It is called in *English* from the *Anglo-Saxon* *Wyrn-þryt*, *i. e. Wormwood*.

There are several Sorts of Wormwood used in Medicine.

1. *Absinthium vulgare* *Offic.* Park 98. Raii Hist. 1. 366. Synop. 3. 188. *Absinthium vulgare majus* J. B. 3. 168. Hist. Oxon. 3. 7. *Absinthium latifolium* *fruc Ponticum*, Ger. 937. Emac. 1096. *Absinthium Ponticum seu Romanum Officinarium, seu Dioscoridis*, C. B. 135. Tourn. Inst. 457. Boerh. Ind. A. 126. WORMWOOD. Dale.

The Root of Wormwood is thick and woody, divided into several Branches, enduring many Years, and holding its lower Leaves all the Winter, which are large and winged, divided into six, eight, or more Sections, with an odd one at the End, very much cut in, greenish above, and white or hoary underneath. In the Summer it shooteth out several woody, striated, hoary Stalks, two or three Feet high, full of a white Pith, having several lesser Leaves growing on them; those towards the Top are long, narrow, and very little cut in, having among them long Spikes of small yellowish naked Flowers, growing many together, hanging down their Heads, and including very small Seeds. The Leaves and Flowers have a very bitter Taste, and a strong Smell.

It grows in Lanes by High-ways and in waste Places, and flowers in July.

This is believed by Gerard, Bauhine, and others, to be the *Absinthium Ponticum* of the Antients, the best Wormwood being supposed to grow in Pontus, a Country of the Lesser Asia. Dale.

The Leaves and Tops are used, and are accounted good in all Disorders of the Stomach, as Weakness, Loss of Appetite, Vomiting, and Surfeits: They strengthen the Viscera, and are of Service in Dropsies, Jaundice, and in Tertian and Quartan Agues, and kill Worms. In all the above-named Cases, it is given infused in Water, Ale, or Wine; a Cataplasm of the green Leaves, beat up with Hog's-lard, was commended to Mr. Ray, by Dr. Hulse, as a good External Remedy against the Swelling of the Tonsils and the Quinsy. Miller.

It is good in long Fevers, is diuretic, and kills Moths. Dale.

Essential Oil of Wormwood, made into Pills with a Bit of Bread, and given two Hours before Meals, after fasting a considerable Time, is a certain Cure for the Worms. Boerhaave.

People in the Country believe Wormwood wore at the Breast as a Nosegay, or smelled to, has great Efficacy in preserving from the Infection of the Small-pox, or Measles, or any other Contagion; which does not seem unlikely.

A Water prepared from fresh Wormwood, by several Cohobations, is excellent for supplying the Place of Bile, assisting the Chylipoietic Organs, killing Worms, and expelling them. Boerhaave.

The Virtues of this Herb, says Boerhaave, are immortal: for its Juice cures all Sorts of Dropsies, provided there be no Rupture of the Viscera. An Ounce thereof, extracted out of the green Leaves, is of great Service to such as labour under a Languor. A Conserve is also made of the tender Tops of the Leaves, which is called the *Father of the Stomach*; it is of excellent Use where the Stomach is clogged with Phlegm and unactive Bile,

but of none at all in a hot Distemperature. An Infusion of the Leaves in Wine is good against Worms. The Herb is effectual against a Quartan, and in the Scurvy; in such Cases I take the Tops of the Branches, and pulverise them, and prescribe the Powder in the Morning fasting. 'Tis an excellent Remedy for the Poor, but the Rich require a more specious Medicine. The Surgeons are also much obliged to this Herb. If a Part begins to putrefy, and a Gangrene approaches, let it be wrapped up in the Leaves confused with Wine or Vinegar, and a little Salt, and I dare warrant the Patient's Security.

Of the Leaves of this Plant, burnt in a close Fire, a Salt is made; in Tachenius's Way, of great Efficacy; but those made by burning in an open Fire are not so good. See SALES TACHENIANI. Of this Herb is also made the *Vinum Absinthites*, which is always proper where the Bile fails in cold Distempers. It restores lost Appetite, where there is a cold Cause; but it has one Fault, that, if taken in too great a Quantity, it weakens the Sight, because of its drying Quality. It is very proper in Obstructions of the Menses, and Retention of Urine, and is a Sudorific in Intermittent Fevers, and the Scurvy. It is an Anticolic, and, by its strong Smell, is said to provoke Sleep; it quickens the Hearing.

2. *Absinthium Romanum*, *Offic.* *Absinthium Ponticum* *fruc Romanum vulgare*, Park. 98. Raii Hist. 367. *Absinthium tenuifolium Ponticum Galeni*, Ger. 937. Emac. 1096. *Absinthium Ponticum tenuifolium incanum*, C. B. 138. Tourn. Inst. 457. Boerh. Ind. A. 126. *Absinthium Ponticum vulgare, folio inferius albo*, J. B. 3. 175. Hist. Oxon. 3. 8. ROMAN WORMWOOD. Dale.

This Wormwood is a much lesser Plant than the former, the Leaves a great deal smaller and finer, the Sections narrower and slenderer, hoary and white both above and underneath. The Leaves that grow on the upper Part of the Branches are long, narrow, and undivided; its Flowers are numerous, growing on the Tops of the Branches, as the former, of a darker Colour; and is in all Respects a more neat and elegant Plant. It has neither so strong a Smell, nor so bitter a Taste, as the common Wormwood. It grows with us only in Gardens, being natural only to warm Climates. It flowers in July.

This Wormwood is of the Nature of the common, but its Virtues weaker; it is useful, however, in Disorders of the Stomach and Liver. Mathiolus writes, that he knew several Persons in a deplorable Condition by the Dropsy, that were cured by the constant Use of the Conserve of the Leaves of this Plant; and indeed, this is the Roman Wormwood, that the Apothecaries ought to make their Conserve of; whereas they altogether make it of the Sea Wormwood, because more pleasant and palatable. Dale, Miller.

3. *Absinthium Alpinum*, Cod. Med. 2. *Absinthium Alpinum candidum humile*, C. B. Pin. 339. Prod. 71. Tourn. Inst. 458. MOUNTAIN WORMWOOD.

It grows in the Mountains of Savoy, and agrees in Virtues with the preceding.

4. *Absinthium Ponticum Antiquorum; an Absinthium Orientale fruticosum, incanum, amplo folio tenuissimo divisum*, Tourn. Cor. 33? Boerh. Ind. 126. PONTICK WORMWOOD.

Dale thinks this the Sort of Wormwood mentioned by Tournefort, as the *Absinthium Ponticum* of the Antients, which, according to him, was not known to the Moderns, tho' it has flourished for twenty Years in the Royal Garden at Paris.

5. *Absinthium Seriphium*, *Offic.* *Absinthium maritimum album*, Ger. 940. Emac. 1099. Raii Hist. 1. 370. Synop. 3. 188. Boerh. Ind. A. 126. *Absinthium Seriphium* *fruc maritimum Anglicum*, Park. 102. *Absinthium Seriphium Belgicum*, C. B. 139. J. B. 3. 178. Hist. Oxon. 3. 9. Tourn. Inst. 458. See WORMWOOD.

This Wormwood is usually about two or three Feet high, with many winged Leaves, lesser and much finer than common Wormwood, very white, and hoary all over both Leaves and Branches. Its Scent is much like Southernwood; and it has but little Bitterness in Taste, but is somewhat saltish. The Flowers are small and naked as the former Kinds, and the Time of flowering is the same. It grows abundantly in all our salt Marshes.

The Leaves and Tops are used, and this is the Roman Wormwood that is in Use in the Shops, and has been so for this hundred Years, if not much longer. Parkinson complaining in his Time, that the Physicians and Apothecaries made Use of it instead of the former, though it came far short of it in Virtue, and Dioscorides and Galen affirmed that Seriphium was hurtful to the Stomach.

6. *Absinthium Seriphium Gallicum*, *Offic.* C. B. Pin. 139. Tourn. Inst. 458. Elem. Bot. 363. Hist. Oxon. 3. 9. Magnot. Bot. 1. Chomel. 431. *Absinthium Seriphium tenuifolium maritimum Narbonense*, J. B. 3. 177. Chab. 373. Raii Synop. 3. 189. *Absinthium Seriphium Narbonense*, Park. Theat. 102. Raii Hist. 1. 370. *Absinthium minus tenuifolium alte incisus foliis, cinereum, falsum, Hispanicum*, Barr. Obs. 1508. Icon. 460. FRENCH SEA WORMWOOD.

It grows on the Sea Coasts of England and Narbonne. The Virtues are the same as the other Sea Wormwoods. Dale.

7. *Absinthium Santonicum*, *Offic.* *Absinthium Santonicum Gallicum*, C. B. 139. Tourn. Inst. 458. Magnol. Bot. App. 289. Hort. Monsp. 2. FRENCH WORMSEED.

It is found in Narbonne, growing with the *Seriphium Gallicum* above-mentioned, and is of the same Virtues.

8. *Santonium & Semen Santonum*, *Offic. Sementina*, Ger. 941. Emac. 1100. *Abinthium Santonicum Alexandrinum, sive Sementina & Semen Santonum*, Park. 102. *Lumbricorum Semen vulgare & Mattioli*, J. B. 3. 180. WORMSEED.

The Seed is in Use.

It is imported from Alexandria. The Seeds are small, oblong, yellow, of an acrid Bitter, and disagreeable Smell. They seem to be formed of small Scales inclosing each other.

These Seeds are in great Reputation for their Virtues in killing Worms. *Dale*. See *SANTONICUM*.

9. *Abinthium Santonicum Judaicum*, C. B. Pin. 139. Raii Hist. 1. 369. Chomel. 445. Hist. Oxon. 3. 8. *Lumbricorum Semen Rauwolfii*, J. B. 3. 180. *Lumbricorum Semen, sive Abinthium Santonicum Rauwolfii*, Chab. 375. *Scheba Arabum*. ARABIAN WORMSEED.

It is brought from Judæa to Alexandria. *Dale*.

Botanists are not agreed about the Plant which produces the Wormseed. Some are of Opinion that it is the Seed of Zedoary, which is not likely, because these are round and of a dark Colour, and inclosed in a tricapsular Vessel, whereas Wormseed has none of these Marks.

Others, amongst which is C. Bauhine, affirm, that this Seed is the Product of a Sort of Wormwood, to which *Dale* assents; but will not determine absolutely, whether it is a Species of Wormwood or Abrotanum.

Rauwolfius says, it grows in Palestine about Bethlehem.

Miller is of Opinion, that what we call Wormseed, is only the young Bud of the Flower of a Species of Abrotanum. See *SANTONICUM*.

10. *Santonium viride*, *Offic. Ghoccan, Pomet*. GREEN WORMSEED.

It is like the above-mentioned Wormseed, but is larger, and of a green Colour, inclining to a yellow.

The Virtues are the same as those of the other Wormseeds.

Pomet says, they were first brought to Paris from Turkey. *Dale*.

11. *Heliochrysum*, *Offic. Chab. 369. Heliochryson*, Park. Parad. 374. *Heliochrysum quorundam, foliis Abrotani*, J. B. 3. 150. *Elioehryson foliis Abrotani*, C. B. 264. *Coma Aurca, sive Heliochryson*, Ger. 520. Emac. 645. *Abinthium tenuifolium corymbis æqualibus seu compactis*, Hist. Oxon. 3. 8. *Abinthium corymbiferum annuum*, Elem. Bot. 363. Tourn. Inst. 458. GOLDEN CUDWEED.

It is cultivated in Gardens, and flowers in July.

The Herb is in Use.

It is recommended against the Bites of Serpents, and in Pains of the Hips and Stranguries. It is said to provoke the Menfes, dissolve concremented Blood, and stop Catarrhs. *Dale*.

Miller in all makes thirty two Sorts of Wormwood, but we have no Account of the medicinal Virtues of any but those already specified.

It is much to be lamented, that the Moderns, who have been very diligent in regulating Plants, and reducing them to Method, should have contented themselves with rendering Botany in some Measure a barren Science. In all the Volumes that have been wrote of late Years on this Subject, we meet with very few Accounts of the Virtues of Plants which were not taken Notice of by the Antients. The usual Way has been to transcribe what they found in the Writings of their Predecessors, being very little solicitous whether the Virtues attributed to Plants were real or imaginary. If, instead of this, they had employ'd their Industry in confirming the true Virtues of Plants as specified by the Antients, rejecting those Accounts which are fabulous, or introduced by Error or Caprice, and discovering other Virtues as yet concealed, the Art of Healing had by this Time been brought to a Degree of Perfection which at present we have no great Reason to boast of.

The following Extracts of Dioscorides, Pliny, and Galen, in Regard to the medicinal Virtues of Wormwood, compared with those mentioned above, will shew how little has been added to what these Authors were acquainted with.

From GALEN, quoted by *Fucius*.

Wormwood has at once an astringent, bitter, and acrimonious Quality, both warming and cleansing, strengthening and drying. For this Reason it purges the Belly of bilious Humours, both by Stool and Urine; but is most effectual in clearing the Veins of Bile, and carrying it off by Urine. Wherefore it is of no Efficacy against Phlegmatic Humours in the Belly, nor operates at all upon Phlegm in the Breast and Lungs; for its astringent Faculty is more powerful than the bitter.

From PLINY.

Wormwood corroborates the Stomach, for which Reason its bitter Flavour is communicated to Wines. A Decoction of it in Water is also drank, to make which, Take about half an Ounce of the Leaves with their Stalks, and boil them in three Pints of Rain-water, putting in some Salt, and let the Decoction stand a Day and a Night in the open Air. The Herb,

they say, is seldom bruised, nor is the Juice of it much in Use; but an Infusion of it is usually drank. The Juice of Wormwood is hurtful to the Stomach and Head, whereas the Decoction, they say, is very wholesome, for it strengthens the Stomach, and expells Bile, excites Urine, lubricates the Passages, eases Pain, and kills Worms in the Belly. Mixed with a little Hartwort and Gallic Nard, with some Vinegar, it removes a Nausea, and discusses Inflations of the Stomach; creates an Appetite, and helps Concoction. Mixed with Rue, Pepper, and Salt, it corrects Crudities. The Antients prescribed it as an Ingredient in a Purge, together with a Pint of Sea-water that had stood a long Time, half an Ounce of the Seeds, a Quarter of an Ounce of Salt, and a Glass of Honey. It works better with double the Quantity of Salt. Some give the aforesaid Quantity in an Electuary with an Addition of Pennyroyal. Some use it for the Palsy; others give their Children the Leaves in Figs, to conceal its Bitterness. Taken with Orris, it gently purges the Breast. For the Yellow Jaundice it is infused green with Parsley or Maidenhair. Against Inflations the Decoction in Water is supped hot. In Distempers of the Liver it is used with Mountain Spikenard. In Disorders of the Spleen it is administered in Vinegar, Barley-water, or a Fig. For watery Eyes it is applied in a Cataplasm with new Wine; for Eyes that have received Blows, it is applied with Honey. Three or four Stalks, with a Root of Mountain Spikenard, infused in half a Pint of Water, provoke Urine and the Menfes; and the latter, if mixed with Honey and made into a Pessary with Wool, and applied to the Pudenda. It cures green Wounds, if laid on them before they are washed; as also scald Heads, and the Itch. It is not to be given in Fevers. It prevents Sea-sickness, if drank. Worn in an Apron, it discusses Tumours of the Groins. The Smell of it inclines to Sleep; or, if it be privately laid under your Pillow, it works the same Effect. The Ashes of Wormwood mixed with Ointment and Oil of Roses turn the Hair black. The Sea Wormwood, by some called Seriphium, is hurtful to the Stomach, loosens the Belly, and kills Worms in the Bowels. They boil a Handful of the Herb in a Pint of Water till half be wasted, and so in Proportion.

The dried Branches of Wormwood, laid in Granaries, are said to drive away Insects, and prevent their destroying the Corn. *Geoponica*.

Wormwood is pernicious to Bees. *Geoponica*.

A Decoction of Wormwood is much recommended by Heister for stopping a Gangrene.

DIOSCORIDES, Liber 3. Cap. 26.

Wormwood, called also Bathypicron, is a well known Herb. The best is that which grows in Pontus, and in Cappadocia on a Mountain called Taurus. It is of a warming, astringent Nature, promotes Digestion, and purges the Stomach and Intestines of bilious Concretions adhering to them. It also provokes Urine, and is a Preservative against Surfeits. It is good likewise against Inflations, and, if it be drank with Hartwort or Mountain Spikenard, eases Pains in the Stomach or Belly. A Quarter of a Pint of the Infusion or Decoction of it, taken every Day, removes a Nausea, and cures the Yellow Jaundice. If drank, or outwardly applied with Honey, it brings down the Menfes. Taken in Vinegar, it helps Oppressions from eating of Mushrooms; and in Wine is an Antidote against the Poyson of the white Chamæleon, and Hemlock, and the venomous Bite of the Shrew-mouse, and Sea-dragon. Made into an Ointment with Honey and Nitre, it helps the Quinsy, and steeped in Water cures the Pustules called Epinyctides. Applied with Honey, it heals a black Eye, sharpens a dim Sight, and helps the Running of the Ears. The hot Vapour of the Decoction eases Pains of the Teeth and Ears. Boiled in sweet Wine, it makes a Cataplasm for Eyes which are very painful. Contused with Cyprian Cerate, it is applied to the Hypochondria, and Region of the Liver, when labouring under inveterate Pains and Disorders; but for Infirmities of the Stomach it is used with Cerate of Roses. Mixed with Figs, Nitre, and Meal of Tares, it relieves hydropical Persons, and such as are subject to Disorders of the Spleen. They prepare a Wine of it, which they call Absinthites, especially in Propontis and Thracia, and use it for all the Purposes aforesaid, if there be no Fever in the Case; they recommend it even in the Heat of Summer, believing it to be a great Preservative of Health. Wormwood, strewed among Clothes kept in Chests, will, they say, preserve them from Moths; and, mixed with Oil, will keep off Gnats from touching the Body. If steeped in Ink, it will preserve such Books as are written with it from being gnawed by Mice. The Juice of the Herb is supposed to work the same Effect, though not fit to be drank, because hurtful to the Stomach, and causing Head-ach. Some adulterate the Juice with Lees of Oil boiled up and mixed with it.

ABSORBENTIA. ABSORBENTS.

Thus all Medicines are called, which have the Power of drying up redundant Humours; whether applied externally to Ulcers, or taken into the Stomach.

The

The Testaceous Powders of all Sorts are *Aborbents*, and are much recommended by Dr. Harris, in Disorders of Children especially.

Physicians are much divided in their Opinions concerning the Efficacy of this Sort of Medicines. Some extol them as the most Sovereign Remedies in almost all Distempers, whether Acute or Chronical; whilst there are others, who affirm they are very pernicious, because, if taken in considerable Quantities, as they must be to have any Effect, they mix with the Mucus of the Stomach and Intestines, and, concreting therewith, line the Intestinal Tube, or some Part of it, with a crustaceous Coat, and thereby stop up the Orifices of the Lacteals, and of the Excretory Vessels of the Intestines, by this Means both preventing a fresh Supply of Chyle from being carried into the Blood, and a Discharge of Redundancies by the usual and most proper Way, that of the Intestinal Glands.

Both Parties endeavour to support their Opinions, with that Obstinacy usual with those who are jealous of the Honour of their favourite Hypothesis; but, what is more unfortunate for those who desire to be informed of the Truth, both also appeal to Experience, the only Thing that can decide the Controversy.

The real Fact seems to be thus:

When the Body labours under any Distemper, either Acute or Chronical, the Stomach is either more or less impaired, and consequently incapable of reducing the Aliment to that exact Neutrality, which is necessary for the Formation of a soft mild Chyle. Hence the Aliment, taken into the Stomach, will putrefy much in the same Manner, that it would have done out of the Stomach in an equal Heat, and the Putrefaction will be either alkaline or acid, according to the Nature of the Food taken in. Thus, if the Food is Animal, the Putrefaction will be alkaline, like that of Carrion; but if of acedent vegetable Juices, or of Milk, it will be acid, or sour. By Acedent Vegetables, I mean those that grow sour out of the Body, when they putrefy. Now when either of these Putrefactions happen in the Stomach, the putrified Juices grow acrimonious, and their Salts, stimulating the Nervous Fibres of the Stomach, produce new Symptoms, and at the same Time lay a Foundation for the Increase of the original Disorder. Nor is this all; for the Efficacy of Medicines is hereby either totally destroyed, or impaired, before they can reach the Part, where they are intended to have their Effect.

In either of these Cases, that is, either in an alkaline, or acid Putrefaction of the Contents of the Stomach and Intestines, Testaceous or Aborbent Medicines seem to be of great Use. In that which is acid, they are doubly serviceable: First, because they are endued with a Specific Virtue, if I may be allowed to call it so, of rendering Acids mild. Secondly, by mixing with the acid Juices, and rendering them less fluid, they impair their Action, for Salts do not act, unless in a State of Fluidity: For this last Reason, they are also serviceable in an alkaline State of the Contents of the Stomach and Intestines, and, in both Cases, render the acrimonious Juices inoffensive, till it is proper to carry them off by Purgings.

It is farther to be observed, that in all Diseases, whether Acute or Chronical, some of the corrupted Juices are perpetually separated, by the Glands of the Stomach and Intestines, from the disordered Mass of Blood, and deposited in the respective Cavities; and these must, if left to themselves, putrefy and become alkaline, in Acute Distempers especially, when the Putrefaction is promoted by the Increase of Heat. Here again *Aborbents* must be of great Efficacy, for the Reasons given above, if taken constantly at proper Intervals, and in Quantities sufficient for the Purpose.

The Inconvenience, mentioned as an Objection to them, of concreting to the Sides of the Stomach and Intestines, is very easily remedied, by carrying them off with proper gentle Purgings, when they have had their Effect; or, in Chronical Disorders, by giving them mixed with such small Quantities of purging Ingredients, as to admit of their being frequently repeated.

But I am much mistaken, if the Efficacy of *Aborbents*, as they are called, is confined to the Stomach and Intestines; for I am firmly of Opinion, that the Saponaceous neutral Juices, which meet in the Stomach, and concur with other Causes for the Solution of the Aliment, are capable of dissolving a Part of these Powders, or drawing a Tincture from them, which entering the Lacteals, and getting into the Circulation, becomes a Deobstruent: But whether they have this Effect by stimulating the small Vessels, and thereby making them contract themselves, and dislodge the obstructing Matter, which adheres to their Sides; or whether they act as Files, and wear away the Obstructions by Degrees; or, lastly, whether they mix with the mucilaginous Obstructions, and, getting into the Pores thereof, lessen their Cohesion, and render them friable, I will not pretend to determine.

ABSORBENTIA is also applied to several Sorts of Vessels in the Body; as the Lacteals, which absorb the Chyle; the Cutaneous Vessels, which admit a Part of the Water of Baths, or Fomentations, or any Thing else that is applied to the Skin; or Vessels which, opening into any Cavities of the Body, either natural or accidental, take up any Juices that are extravasated, and convey them again to the circulating Blood.

ABSTEMIUS. ABSTEMIOUS. Castellus informs us this strictly signifies (*ἀστικός*) one that abstains from Wine.

ABSTENTIO. This is used by Cælius Aurelianus to express a Suppression, or Retention. Thus *Acut. l. iii. cap. 17.* he mentions *Abstentio Stercorum*, a Retention of the Excrements, as a Symptom very frequent in a Satyriasis. And, *Acut. l. 2. c. 5.* *Abstentia officiorum naturalium Egestiones*, signifies the same Thing. And again, *Chron. l. 1. c. 5.* *Abstentis denique naturalibus Officiis, impletum Caput magis gravatur.* The Head, already loaded, is more oppressed by the Suppression of the natural Evacuations, speaking of a *Mania*.

In a Sense somewhat different, the same Author uses the Word *Abstenta*, *Acut. l. 2. c. 16.* applied to the Pleura: *Hinc denique, quoties Tumore densatur, Ossibus vicinantis Abstenta ire latius prohibetur.* He seems to mean, that the Tumour of the inflamed Pleura is prevented, by the adjacent Bones, from extending itself.

ABSTERGENTIA. ABSTERGENTS.

Castellus seems to think these the same as *Abluents*, from which they appear to me to differ very much, Abluents being Fluids which can only dissolve and wash away Salts, which are dissolvable in Water; whereas *Abstergents* are of a Saponaceous Nature, and capable of dissolving Concretions formed of Earth and Oil, of the Nature of a Resin, which cannot be dissolved by simple Abluents, or a watery Menstruum.

ABSTINENTIA. ABSTINENCE, either general, from all Sorts of Aliment, or particular, from some Kind of Food.

The Diatribes of the Methodic Sect, whence they acquired the Name of *Diatritarii*, was not the *Abstinentia* of three Days, as is generally said, but the Space of three Days, during which these Physicians enjoined Abstinence. See DIATRITOS.

Erasistratus made a strict *Abstinentia* supply the Place of Bleeding, in Inflammations and Fevers. *Galen.*

Diodorus Siculus remarks, that *Abstinentia* was much recommended by the ancient Egyptians, as a Cure for Distempers.

Abstinentia seems to be the very best Preservative of Health for People that lead a sedentary Life, and, properly managed, will be of great Assistance to Medicines, in the Cure of Distempers both Acute and Chronical.

Besides the usual Senses of *Abstinentia*, Cælius Aurelianus uses it to signify a Suppression: Thus, *Chron. l. 2. c. 9.* *Abstinentia Hæmorrhoidarum Veterum*, signifies a Suppression of habitual Hæmorrhoides, and is mentioned amongst the Causes of spontaneous Hæmorrhages. Thus also *Abstinentia Sudoris* signifies a Suppression of Sweat, *Acut. l. 2. c. 37.* Sometimes, in this Author, it signifies a Compression. Thus, *Acut. l. 3. c. 17.* *Spiritus ob Abstinentiam clausus*, means the Wind shut up in the Intestines by Compression, thereby causing the Iliac Passion.

The Verb *Abstinerere* also, in the above-mentioned Author, signifies frequently to restrain, or suppress.

ABSTRACTITIUS. ABSTRACTITIOUS. Thus the native Spirits of aromatic Vegetables are called, to distinguish them from Spirits produced by Fermentation. *Castellus*, from *Libavius*.

ABSUS. The Egyptian Lotus, *Rail Hist.*

ABVACUATIO, or ABEVACUATIO. Thus N. Leoniciæ translates the word *ἀποκένωσις*. *Castellus*. See APOCENOSIS.

ABUNDANTIA. This is used to signify any Excess of Humours of any Kind in the Body.

ABUSUS. An ill Use of any Thing: It is frequently applied to the Non-naturals and Medicines by Medicinal Writers.

ABUTIGE. A Town in Egypt, famous at this Time for producing the very best Sort of Opium: It is within the Territories of the ancient Thebes. *Schulzius*.

ABUTILON. (The Name is Arabic.) YELLOW MALLOW.

The Character of this Plant.

It hath the whole Appearance of the Mallow, both in Leaves and Flower: The Flower hath a single Cut; the Seeds, which are shaped like a Kidney, are each of them lodged in a separate Cell.

ABUTILON, Offic. Elem. Bot. 83. Tourn. Inst. 99. Boerh. Ind. A. 274. Rupp. Flor. Jan. 31. *Althæa lutea*, Ger. 790. Emac. 935. *Rail Hist.* 1. 699. *Althæa Theophrasti flore luteo*, C. B. Pin. 316. Hist. Oxon. 2. 531. *Althæa Theophrasti flore luteo, quibusdam Abutilon*, J. B. 2. 938. Chab. 302. *Althæa lutea, sive Abutilon Avicennæ putatum*, Park. Theat. 305. *Alcea Indica, Abutilon dicta major, pericarpio membranaceo, orbiculari, compresso, vertice corniculis extus coronato, intus in decem, aut duodecim loculamenta diviso*, Pluk. Almag. 17. YELLOW MALLOW.

It is cultivated in Gardens, and flowers in July. The Leaves and Seed are in Use; the Leaves, externally applied, cleanse Ulcers; the Seed provokes Urine, and expels the Gravel. The Plant is an Aperient and Vulnerary.

Its Species are thus enumerated by Miller.

1. *Abutilon Dod.* The common Yellow Mallow.
2. *Abutilon Indicum*, J. B. The Indian Yellow Mallow.
3. *Abutilon Carolinianum reptans Alcea foliis gilvo flore*, Aët. Phil. The Carolina Abutilon, with Leaves like the Vervain Mallow.

4. *Abutilon*

4. *Abutilon Americanum amplissimo folio, caule villoso*, Plum. The large-leav'd American Abutilon, with woolly Stalks.

5. *Abutilon Americanum, fructu subrotundo, pendulo, e capsulis vescariis crispis conflato*, Rand. The American Abutilon, with roundish pendulous Fruit, whose Seed-vessel is like a swelled Bladder.

6. *Abutilon Althæoides, flore carneo, fructu globofo*, Hort. Elth. p. 1. Abutilon with the Appearance of Althæa, having a flesh-coloured Flower, and a globular Fruit.

7. *Abutilon Periploce acutioris folii, fructu stellato*, Hort. Elth. p. 4. Abutilon, with a sharp-pointed Periploca Leaf, and a starry Fruit.

8. *Abutilon Americanum, folio hastato, flore amplo purpureo-ceruleo, pediculis longis insidentibus*, Houst. American Abutilon, with a spear-pointed Leaf, and large purple Flowers, with long Foot-stalks.

9. *Abutilon Americanum, flore albido, fructu e capsulis vescariis plenis conflato, pediculo geniculo*, Martyn. Cent. 1. Pl. 33. American Abutilon, with a whitish Flower, a smooth swelling Seed-vessel, and a jointed Stalk.

10. *Abutilon Americanum, ribes foliis, flore carneo, fructu pentagono aspero*, Houst. American Abutilon, with Currant Leaves, a flesh-coloured Flower, and a rough five-corner'd Fruit.

11. *Abutilon Americanum frutescens, folio amplo cordato, subtus lanuginoso, floribus amplis luteis*, Houst. Shrubby American Abutilon, with a large heart-shaped Leaf, woolly on the under Side, and large yellow Flowers.

12. *Abutilon fruticosum aquaticum, folio cordato scabro, flore pallido luteo*, Houst. Aquatic Abutilon, with a rough heart-shaped Leaf, and a pale yellow Flower.

13. *Abutilon Americanum, populi folio leviter serrato*, Houst. American Abutilon, with a Poplar-leaf lightly sawed on the Edges.

14. *Abutilon Americanum fruticosum, foliis cordatis, floribus parvis purpurascens*, Houst. Shrubby American Abutilon, with heart-shaped Leaves, and small purplish Flowers.

15. *Abutilon Americanum viscosum, Althææ folio mucronato, flore paucifloro*, Houst. American viscous Abutilon, with pointed Marsh-mallow Leaves, and a small yellow Flower.

16. *Abutilon fruticosum, foliis subrotundis serratis, floribus albis pentapetalis, ad alas foliorum conglomeratis*, Sloan Cat. Shrubby American Abutilon, with roundish serrated Leaves, and white Flowers growing in Clusters from the Wings of the Leaves.

ABYSSUS. Gulielmus Menens calls by this Name the *Materia prima*, or first Matter, of which all Things are formed. *Theatrum Chymicum*, p. 274.

It is also used by the Chymists to express a proper Receptacle for the Seminal Matter, from which all Things are formed. *Castellus*, from *Libanius*.

ACACALIS. A Shrub, bearing a papilionaceous Flower, and siliquous Fruit, called also Kirmesen. *Raii Hist.*

It is said to take its Name from the Nymph Acacalis, who was ravished by Apollo. *Goræus*.

Dioscorides says, it is the Fruit of an Egyptian Shrub, like a Tamarisk, the Infusion of which is mixed with Collyria, to sharpen the Eye-sight. *Dioscorid. l. 1. c. 118.*

The Plant is like the *Silqua Sylvæstris rotundifolia* of C. B. **JUDAS'S TREE.**

It is a popular Remedy at Constantinople for Disorders of the Eyes. *Raii Hist.*

The Pods are in Use, and are astringent. *Dale.*

Hesychius explains ἀκακάλις, the Flower of the Narcissus.

ACACIA. Egyptian Thorn, or Binding Bean-tree (Ἀκακία, of ἀκαζω, to sharpen.)

1. *Acacia*, Offic. Alp. Egypt. 9. Vesling. Obs. 6. *Acacia vera*, Schrod. 4. 6. *Raii Hist.* 1. 976. J. B. 1. 9. Tourn. Inst. 605. Boerh. Ind. A. 2. 56. *Acacia vera*, Chab. 92. *Acacia vera sive Spina Aegyptiaca*, Park. Theat. 1547. *Acacia Dioscoridis*, Ger. Emac. 1590. *Acacia vera Aegyptiaca, siliquis sinuosis, sive Lupini*, Breyn. Prod. 2. 2. *Acacia Aegyptiaca*, Col. in Rech. 866. *Acacia Aegyptiaca foliis Scorpioidis leguminosæ, siliquis albis, compressis, isthmis interceptis, floribus luteis*, Herm. Cat. Hort. Lugd. Bat. 5. *Acacia vera*, Ger. 1149. *Acacia foliis Scorpioidis leguminosæ*, C. B. Pin. 392. *Acacia Aegyptiaca, siliquis Lupini, floribus luteis*, Herm. Parad. Bat. Prod. 303. *Acacia vera, seu Spina Aegyptiaca, foliis Scorpioidis leguminosæ, floribus luteis, siliquis compressis Lupini*, Dougl. Ind. 2. *Acacia vera seu Aegyptiaca*, Ind. Med. 2. *Acacia vera, sive Spina Aegyptiaca, subrotundis foliis, flore luteo, siliquis brevi, paucioribus, isthmis glabris & cortice nigricantibus denata*, Pluck. Almag. 3. *Mizquitl seu Acacia*, Hein. 59. **THE EGYPTIAN THORN.** *Dale.*

This grows to be a pretty big Tree, though not very tall, spreading out into many Branches full of sharp Thorns, having many large winged Leaves divided into several pinnated *Sureuli*, set opposite to one another, like Fern, about three Inches long, set thick on each side with slender narrow *Pinnule*. The Flowers come forth at the Setting on of the small Branches, on pretty long-footed Stalks, consisting of round Clusters, of whitish yellow Filaments, which are succeeded by flat Pods, near an Inch broad, and five or six Inches long, containing several flat Lupin-like Seeds, separated from each other by a round short Parti-

tion, which makes each Pod appear like a String of flattish Beads.

It grows in Egypt, Arabia, &c. The inspissated Juice, expressed from the unripe Fruit, is reddish or yellowish within, and blackish without; of a bitter Taste, and harsh, with an Astringency. Of the Pods, before they are ripe, is made the true *Acacia* of the Ancients, which enters the Composition of their Theriaca; and this is meant, when *Acacia* is mentioned alone. *Gummi Arabicum*, or Gum Arabic of the Shops, is thought, by some, to be the Gum of this Tree; it is of a white Colour, inclining to yellow, pale and pellucid, of an insipid Taste, and viscous; it exudes spontaneously from an Incision of the Tree, made on Purpose. That is the best, which is pellucid like Glass, unmixed, and in the Form of small Worms. The Juice refrigerates and dries, consists of gross Particles, incrustates, and astringes. The Gum heats and moistens, inspissates, stops the Pores of the Skin, and blunts the Acrimony of Medicines. From its soft, glutinous Quality, it is serviceable against Coughs, Hoarseness, and Disorders of the Aspera Arteria, is a proper Ingredient in Applications to the Eyes and Arteries, and is of great Efficacy in the Dysuria, or Heat of Urine, and the Diabetes. *Dale, Miller.*

Prosper Alpinus tells us, that the Pods are beaten in a Mortar, and the Juice, being pressed out, is afterwards evaporated by a gentle Heat to a due Consistence. There is what they call the Liquid Juice, and the Dry Juice; the latter is most hardened by Evaporation, and is much used in dying of Leather.

The same Author tells us, that a Clyster of the Decoction of the green immature Pods, or the Leaves, or Flowers, is very effectual in stopping Fluxes of Blood, or any other Humours; and that it is excellent in Uterine Hæmorrhages.

The true *Acacia*, Miller says, is rarely to be met with in the Shops, the *Acacia Germanica*, or the inspissated Juice of Sloes, supplying its Place.

2. *Acacia Indica Farnesiana*, Ald. 2. *Raii Hist.* 1. 977. Tourn. Inst. 605. Elm. Bot. 477. Ind. Med. 57. *Jonsf. Dendr.* 366. *Rupp. Flor. Jen.* 18. *Acacia Indica siliqua tumida tuberosa*, Breyn. Prod. 2. 2. *Acacia America siliquis teretibus ventrisis, floribus luteis*, Herm. Par. Bat. Prod. 303. Cat. Jam. 152. *Hist.* 2. 56. *Acacia Americana Farnesiana*, Park. Theat. 1547. *Acacia Indica foliis Scorpioidis leguminosæ siliquis fuscis, teretibus, resinosis*, Herm. Hort. Lugd. Bat. 5. Boerh. Ind. B. 2. 56. Volck. Flor. Nor. 4. **INDIAN THORN.**

It is cultivated in the Gardens of the Curious.

The Gum Arabic, according to some, also flows from this Tree.

3. *Acacia siliquis compressis*, Ind. Med. 57. *Gummi Senica*, Offic. *Gummi Senica seu Orientalis*, Mont. Exot. 10.

The Gum, called Senegal, in the Index Medicamentorum, is like Gum Arabic, but in greater Lumps; of a rough external Superficies, but clear and transparent within, its Colour inclining sometimes to White, sometimes to Red, of an insipid watery Taste, and viscous, and of no Smell at all. It is imported from Guinea, and takes its Name, as some affirm, from the River Senega. But from what Tree it flows or is extracted, I am at Loss to guess, except it be a Species of *Acacia*, as from its Likeness to Gum Arabic, both in outward Form and Virtues, we may reasonably conclude. The London Apothecaries use the whitest and purest Lumps of this Gum, instead of Gum Arabic.

4. *Lycium Indicum*, Offic. *Lycium Indicum putatum Garcie*, Park. Theat. 1011. *Lycium Garcie sive Cate*, J. B. 1. 61. *Raii Hist.* 2. 1628. *Lycium Indicum & Cate*, Chab. 51. *Lycium Ericæ foliis, Cate Garcie*, Jonsf. Dendr. 268. *Lycium foliis Ericæ*, C. B. Pin. 479. *Arbor Spinosa, unde Cate sive Lycium exprimitur*, Bont. 92. **INDIAN THORN.**

It grows in the East-Indies. The inspissated Juice is called *Cate*, which strengthens and fastens the Teeth and Gums. Whether the *Cate* of Bontius, and the *Terra Japonica*, or *Catechu*, be the same, is not easy for the Learned to determine. From the Nearness of the Names *Cate* and *Catechu*, I am inclined to think they are the same Thing. But since Holbighius affirms, that the *Catechu* is taken from that Tree, whose Fruit the Natives eat with Lime and Betel, which, Bontius assures us, is the Fruit of the *Areca*, or *Fansol*, I cannot but give Credit to so great a Man, especially, considering he lived many Years in that Country. And since there is so great a Variety, both in the Colour and Weight, of *Terra Japonica*, I don't see why they may not be the Product of different Plants, tho' called by the same Name.

Dale mentions a fifth Species, from which the Raath or *Lycium Indicum* is made, from the German Ephemerides, Anno 13. P. 8, 9, 10. T. 1.

ACACIA GERMANICA. This the College directs to be made thus:

Take of wild Sloes, yet hardly ripe, any Quantity, press out their Juice, and in a Bath Heat inspissate it. J. B. *Quincy's London Dispensatory.*

Great Care must be taken, by continual Agitation, or well Regulating the Fire, to prevent its Burning, which it will be very subject to do, before it acquires that Consistence, which will make it prove somewhat brittle, as it ought to be in the Cold. *Shaw's Notes to the Edinburgh Dispensatory.*

Acacia

Acacia is extremely rough and astringent, and consequently proper in Hæmorrhages, Diarrhoeas, and Dysenteries.

It is used as an Ingredient in Gargles, to brace the Salival Glands, and Uvula, when relaxed, and as a repellent Collyrium in Inflammations of the Eyes. It is used in Egypt to strengthen the Gums, and fasten the Teeth. *Geoffroy*.

As *Acacia* is an Astringent, it may properly enough be made Use of in Medicines designed to brace up the Animal Fibres, when in a State of Relaxation: The Dose of the true *Acacia* is from four Grains to a Dram; that of the German *Acacia*, from six Grains to a Dram and half. *Boerhaave*.

It may be properly given in Hæmorrhages, dissolved in Vinegar and Water. *Cælius Aurelianus*.

ACACIA FERREA. An Iron Spoon. *Rulandus. Johnson*.

ACACOS. From α Negative, and $\kappa\alpha\kappa\epsilon\varsigma$, bad. It has been applied to Distempers which are not attended with Danger by Pechlinus. And to the Aphthæ of Children. *Castellus*.

ACADEMIA. There was something very grand in the Imagination of Paracelsus, of which this is an Instance. He says; he was educated neither at Paris, nor Rome, nor Tholouse, nor any other sophistical School, but all Nature was his University, where God manifests himself all powerful, wise, and glorious to those that seek him. Hence it was, says he, that I learned all I write, and which I know to be true.

ACÆRIA. Unseasonableness. From α Negative, and $\kappa\alpha\epsilon\varsigma$, Time.

ACAH, or ACHAH. Alum Water. *Rulandus*.

ACAI. Vinegar. *Rulandus. Johnson*.

ACAJA Pisonis. *Acaja quæ est Nametara Brasiliensibus* *Marcgrav.* called also by Ray, *Prunus Brasiliensis Fructu racemoso, ligno intus pro Officulo*.

This Tree grows to the Size of a tall Lime. The Bark is rough and of a light Ash Colour; like Elder. The Leaves are smooth, exactly opposite to each other, two, three, or four Fingers long, of unequal Sizes, a Finger and half, or two Fingers broad, acuminate, shining, and have a broad Nerve running the whole Length of it; not unlike those of the Walnut.

It produces a great Number of Flowers in Clusters, of a yellowish White. These are succeeded by yellow Plums, not unlike ours in Figure and Magnitude, with a thin Skin, and of an acid Taste, containing a large Stone, which consists of woody Filaments, and which is soft enough to be easily cracked with the Teeth, it incloses a Kernel of a yellowish white Colour.

The Leaves are extremely acid and astringent, and are recommended for the Recovery of a lost Appetite, and to assuage Thirst in Fevers.

Of the young Leaves bruised, a very agreeable Sauce is made for roasted Meats.

The Wood is red and light as a Cork.

The Plums are of a very grateful acid Taste. When ripe they fall, and smell deliciously. They are refrigerating and astringent, and very good in a Nausea, and Fever, and much esteemed for a Dysentery.

A Wine is made of them, which, when old, will intoxicate.

The Buds and Tops are used as Pickles; and these, when bruised, emit a Froth, which, put into the Eyes, cures Inflammations, clears the Sight, and takes away Specks and Films. At first it gives them Pain, but that is very soon over.

The Leaves, Buds, Juice, and Bark, are recommended in Gargarisms for Inflammations of the Throat; and in Baths for hot Disorders of the Feet and other Parts of the Body.

It is upon the Extremities of the Branches of this Tree, that certain Birds, about the Size of a Magpy, adorned with beautiful black, and yellow Feathers, build their Nests pendulous, that they may be out of the Way of Serpents, and other noxious Insects. *Raii Hist.*

ACAJAIBA.

Pomifera seu potius prunifera Indica nuce reniformi summo pomo imascente, CAJUM dicta. *Anacardii alia species* C. B. *Cajum* Ger. Park. J. B. *Acajaiba* Pisonis & *Marcgravii*. *Kapa Mara* H. M. P. 3. T. 54. p. 65. *Anacardium occidentale Cajou dictum, Officulo reni leporis figura*. Herman. The CAJOU or CASSU TREE. *Raii Hist.* p. 1649.

The Characters.

The Cup of the Flower (which is produced at the Extremity of a Foot-stalk) is oblong and quinquefid; the Flower consists of one Leaf, which is divided into five long narrow Segments; in the Bottom of the Calyx is the Ovary, which becomes a soft Pear-shaped Fruit, upon the Apex of which grows a Vessel, in which is contained one Kidney-shaped Seed.

There is but one Species of this Plant yet known, which is

ACAJOU. *Thev. Franc. Antarct.* The CASHW-NUT.

This Tree is very common in many Parts of America, particularly in Jamaica and Barbadoes, where it grows to be a very large Tree. *Miller*.

It grows every where in Malabar, but is reckoned a Native of Brasil. It bears ripe Fruit every Year in August and September, and continues fruitful about 30 Years. In Brasil, according to *Marcgravius*, it begins to blossom about the End of August, and is in full Bloom in September, and produces the greatest Quantity

of ripe Fruit in December and January. It is found also in Jamaica.

Of the Juice of the Fruit they make a Drink, which duly fermented inebriates like Wine. The Fruit roasted far exceeds Chestnuts, and tastes as well as Almonds. There is no Biting of the whole Fruit raw, without losing the Skin off your Jaws by the acrid Juice; therefore it is cut open with a Knife. Swallowed raw, it grates the Throat with its acrid and austere Juice; therefore it is cut up into little Balls, which are dipped in Water or Wine, and Salt thrown over them, by which Means their Acrimony is taken off; and they become of a most delicious Taste. They corroborate the Stomach, help Concoction, and stop Vomiting and Nausea. The Indians eat them slightly roasted as a Provocation to Venery. The Juice stops a Diarrhoea, and cures a Diabetes. The Nuts will blaze in the Flame.

From the sweetish Liquor contained in the two Shells the Natives extract an Oil, in Use with Painters, to give their Colour a lasting Black; the same preserves Wood from Putrefaction. They say there is nothing better than this acrid Oil for Tetters, Ringworms, Itch, and to kill Worms, outwardly applied.

The Tree, when wounded, distills a pellucid Gum, both in Colour and Consistence like the best Gum Arabic. *Marcgrav.*

Query whether the Cattee, or Cassu, or Catechu, be not made of this Oil.

The Brasilians compute their Years by the Nuts of the Cajou, laying up one for every Year.

The Wood is serviceable for several Purposes, being of a hard Substance. It is not subject to Worms, and therefore fit for Shipping.

This Tree is peculiarly remarkable on Account of its Fruit. It might, perhaps, more properly be reckoned among the pruniferous Kind. *Raii Hist. Plant.*

ACAJOUANUM LIGNUM.

This is not the Wood of the Tree that bears the Acajou Nuts. It is of a red Colour, and never touched by Worms, which renders it very proper for Furniture; but it is seldom used in Physick. *Geoffroy*.

ACAIROS. $\alpha\kappa\alpha\iota\rho\varsigma$. From α Negative, and $\kappa\alpha\iota\rho\varsigma$, Time. Unseasonable. It is applied to any Thing that happens at an improper or unusual Time, or is unlike what ought to happen under the same Circumstances of Time and Place; and in this last Sense $\alpha\kappa\alpha\iota\rho\varsigma$ $\alpha\pi\omicron\varsigma$ $\alpha\sigma\iota\varsigma$, Hippocrat. Epidem. L. 1. ought to be taken, that is, a crude Hypostasis or Sediment in the Urine, not like what it ought to be in order to constitute a favourable Symptom. Thus $\alpha\kappa\alpha\iota\rho\varsigma$ $\delta\iota\alpha\chi\omega\rho\acute{\iota}\mu\alpha\tau\alpha$, and $\alpha\kappa\alpha\iota\rho\epsilon\tau\epsilon\rho\alpha$ $\delta\iota\alpha\chi\omega\rho\acute{\iota}\mu\alpha\tau\alpha$, and $\alpha\kappa\alpha\iota\rho\varsigma$ $\iota\delta\rho\omega\tau\epsilon\varsigma$, are to be understood of Stools and Sweats, which are unseasonable, and which bring no Relief. $\alpha\kappa\alpha\iota\rho\varsigma$ also is used by Hippocrates to signify unseasonably, as Epid. L. 1. $\delta\upsilon$ $\lambda\iota\mu\upsilon$ $\delta\epsilon$ $\alpha\kappa\alpha\iota\rho\varsigma$ $\tau\alpha$ $\tau\omega\upsilon$ $\psi\upsilon\chi\epsilon\omega\upsilon$. Cold Weather not very unseasonable for the Time of the Year. And in the same Book, $\delta\iota\psi\acute{\omega}\delta\epsilon\iota\varsigma$ $\delta\upsilon$ $\lambda\iota\mu\upsilon$ $\alpha\kappa\alpha\iota\rho\varsigma$, not more thirsty than might reasonably be expected, considering the Fever. And Epid. L. 6. Sect. 3. Aph. 28. speaking of the Piles, he says, they cause many Disorders there specified, ($\iota\eta\tau\epsilon\upsilon\theta\acute{\iota}\nu\tau\epsilon\varsigma$ $\alpha\kappa\alpha\iota\rho\varsigma$) if unseasonably cured. $\pi\acute{\iota}\nu\omicron\upsilon$ $\alpha\kappa\alpha\iota\rho\upsilon$, de Ratione Victus in Acutis, signifies unseasonable Exercise and Labour; or, as Galen explains it, such as the present Condition of the Body cannot support without Inconvenience.

ACAJOU. The Cajou, Cassu, or Cashew-Nut.

ACALAI. Salt.

ACALCUM. Tin. *Castellus* from *Mullerus*.

ACALEPHE. $\alpha\kappa\alpha\lambda\acute{\iota}\phi\eta$, or $\alpha\kappa\alpha\lambda\acute{\iota}\phi\eta$, a Nettle. *Gortialis. Foessius. Constantine*.

It signifies also a certain Fish, whose Flesh is very tender, and easy of Digestion. I take it to be a Shell Fish mentioned by Athenæus. It signifies also a Sea-fowl mentioned by Nicander. And a Sea-animal mentioned by Gellius. They derive it from α Negative, $\kappa\alpha\lambda\eta$, handsome or agreeable, and $\alpha\phi\eta$, a Touch. Because the Touch, as it hurts, is not agreeable. *Constantine*.

ACAMATOS. $\alpha\kappa\alpha\mu\alpha\tau\acute{\iota}$, from α Negative, and $\kappa\acute{\alpha}\mu\alpha\iota$, to labour. By this, Galen means, if I understand him, that Position of a Limb, which is equally distant from Flexion, and Extension, which Situation the Part can longest bear without Weariness. Thus, when we sleep, the Knees are bent, that neither the Flexors nor Extensors of the Leg may be upon the Stretch. In like Manner the Arm is generally laid spontaneously in the most easy Position, or such a one as can be longest supported without Fatigue. This is when the Arm makes near a right Angle with the Humerus, the Palm is turned inward, and the Back of the Hand outwards; for then the Flexors and Extensors, the Pronators and Supinators, are in a middle Situation betwixt Flexion and Extension, Pronation and Supination, that is, they act less than they would do in any other Position.

ACAMECH, or ACERMACH. This both *Rulandus* and *Johnson* explain by *Superfluitas Argenti*. But whether he means Superfluity of Silver, meaning Money, or the Scoria of the Metal, or a Superfluity of the Humidum radicale in Silver, I cannot determine.

ACANOR. A particular Sort of Chymical Furnace.

ACANTHA. $\alpha\kappa\alpha\nu\theta\alpha$. This signifies in general any thing that

that is sharp-pointed and prickly, as a Thorn, or the Fins of some Sorts of Fish. Hence it has been applied to the Assēmbly of the acute Processes of the Vertebrae, each of which is called a spinal Apophysis, or Process. **Ἀκανθα λευκή*, is the Spina Alba, or White Thorn. *Gorræus*.

ACANTHABOLUS. **Ἀκανθα*, a Thorn, and *βάλλω*, to cast, or cast out.

A Chirurgical Instrument described by Paulus Æginæta, like Tweezers, useful in taking away a cariated Piece of Bone that is loose, or Thorns, or Tents, or any thing extraneous in a Wound; or else to pull away Hairs from the Eye-lids, that are troublesome, and irritate the Eyes, or from the Inside of the Nose, or Eye-brows.

There are several Indentations on each Side of the Chaps, which, answering to each other, make it take faster hold when shut.

Scultetus gives a Figure of it, Tab. 4. Fig. 1. In this the Handle is made flat, that upon Occasion it may serve instead of a Spatula to spread Plaisters.

ACANTHACEOUS. A Botanical Term applied to Plants of the Thistle Kind, which are prickly.

ACANTHALZUCA. The same as Echinopus. Glove Thistle.

ACANTHICE. **Ἀκανθική μασίχη*, *Gorræus* explains this, The Tear which is contained in the Top of the Helxine, which is Pellitory of the Wall, of an agreeable Taste; but I believe by a double Mistake, for in the first Place it is, according to Theophrastus, the Product of the Carduus Chamæleon, or Carline Thistle; and in the next the Word *ἔυσομον*, which he translates, of an agreeable Taste, signifies here, good for Disorders of the Mouth. *Salmasius*.

ACANTHIUM. The Cotton Thistle. See **CARDUS**.

ACANTHION. The Hedge Hog. See **ECHINUS**. *Gorræus*.

ACANTHUS. [**Ἀκανθῶς*, so called of *ἄκανθα*, a Thorn, — the Youth Acanthus, whom the Poets fable to be metamorphosed into the Flower of this Herb.] This is called Branca Ursina, or Bears-breech.

It is the *Acanthus*, *Branca ursina*, *Offic. Acanthus sativus*, *Ger.* 986. *Emac.* 1047. *Park. Theat.* 992. *Raii Hist.* 2. 1325. *Acanthus sativus vel mollis Virgilii*, *C. B. Pin.* 383. *Tourn. Inst.* 176. *Elem. Bot.* 145. *Boerh. Ind. C.* 238. *Hist. Oxon.* 3. 604. *Acanthus mollis*, *Rivin. Irr. M. Tab.* 87. *Carduus Acanthus, sive Branca ursina*, *J. B.* 3. 75. *Carduus, Acanthus, Branca ursina*, *Chab.* 350. **BRANK URSINE.** *Dale*.

The Leaves of the *Acanthus* are of a shining, dark, green Colour, about a Foot long, and three or four Inches broad, cut deeply into several Parts after a neat Manner; so that from those Leaves the Antients took the Pattern of the Foliage Work about the Capitals of their Pillars, and the other Parts of their Buildings. From among the Leaves, which lie on the Ground, arises a Stalk about two Feet high, and about a Finger thick, smooth, round, and bare of Leaves till near the Top, which is composed of a Head, or Thyrsus, of white gaping Flowers, standing amongst small, hard, prickly Leaves, which supply the Place of the Calces, and almost cover and hide the Acorn like a Seed-vessel, which is divided by a Partition into two Cells, each containing two Seeds. The Root is long and spreading. It is cultivated with us in Gardens, its native Place being Italy, Spain, and the Southern Part of France. It flowers in July and August.

It is a Plant but seldom used, and that only in Clysters and Baths for Obstructions, and for the Stone and Gravel. The Herb-women sell the Leaves of Helliboraster, or Bears-seet, or Sphondylium, or Cow-parsnep, for Bears-breech. *Miller*.

Dale says, it provokes Urine, and stops a Diarrhæa.

It is endued with an emollient and aperient Virtue. That called *Acanthus Mollis*, in the Shops, is of a very soft Nature, somewhat saponaceous, like the Mallow, and insipid. Its glutinous and demulcent Juice is an Ingredient in all emollient Clysters and Cataplasms. It is excellent for Combuitions and Laxations, applied in the Manner of a Cataplasma. The Root is good for such as spit Blood after a Bruise. *Boerhaave*.

2. *Acanthus Sylvestris*, *Offic. Park. Theat.* 992. *Ger.* 986. *Acanthus Sylvestris aculeatus*, *Ger. Emac.* 1047. *Acanthus aculeatus*, *C. B. Pin.* 383. *Raii Hist.* 2. 1325. *Hist. Oxon.* 3. 624. *Boerh. Ind. A.* 239. *Tourn. Inst.* 176. *Elem. Bot.* 145. *Acanthus Sylvestris, sive Branca ursina spinosa*, *J. B.* 375. **WILD BRANK-URSINE.**

It is cultivated in Botanic Gardens, and flowers in July; the Herb is used in Phyllick, and hath the same Virtues as the former. *Dale*.

To the two Species of *Acanthus*, above-mentioned, *Miller* adds

Acanthus rarioribus & brevioribus Aculeis munitus, *Tourn.* The middle Bears-breech with short Spines.

Acanthus Lusitanicus, amplissimo folio lucido. The Portugal Bears-breech, with large shining Leaves.

Acanthus Orientalis humillimus, Foliis pinnatis aculeatis, *Tourn.* Cor. Dwarf Eastern Bears-breech with prickly winged Leaves.

As the **ACANTHUS** of the Antients has given the Learned some Perplexity, the Curious will not be displeased at the following Observations from *Salmasius*, especially as they are of some Importance for the distinguishing justly some Plants mentioned by the antient Writers on the *Materia Medica*.

Of the **ACANTHUS**, a Topiarian [ornamental to a Garden] Plant, and the **ACANTHUS** of Egypt.

The **ACANTHUS** is a Plant that serves for an Ornament to a Garden. The *Acanthus*, a Tree of Egypt, called by Theophrastus the *Egyptian Acanthus*, or Thorn of Egypt, is a thorny Tree, which, what I wonder at, was called *Acanthus* by the Latins, a Word signifying a Thorn; for *ἄκανθος* is the same as *ἀκάνθην*. But I more wonder that it has been, by most, confounded with the Topiarian *Acanthus*. *Isidorus*, from an antient Author, tells us, “that the Myrrh, a Tree of Arabia, “five Cubits high, is like the Thorn which they call *Acanthus*.” This is the Egyptian *Acanthus* or *Acanthe*, which *Diodorus Siculus* and *Dioscorides* affirm to be like the Myrrh-Tree. The same *Isidore* makes the *Acanthus* an Egyptian Plant, an Evergreen, very prickly, and with flexible Twigs; that is, he makes the Topiarian *Acanthus*, and the *Acanthus* that is the Egyptian Tree, to be one and the same. The same does *Servius*. But the Egyptian *Acanthus*, which is described by Theophrastus, and distinguished into two Kinds, is quite another Thing from the *Acanthus* of Virgil, which he reckons among the foreign Trees.

———— *Baccas semper frondentis Acanthi.*

The Egyptian *Acanthus* of Theophrastus has Pods for its Fruit, that of Virgil Berries. The *Acanthus* of Virgil was the Cyrenean Lotos, which Herodotus relates to be like the *Acanthus*, or Egyptian Thorn. Hence the Cyrenean Lotos was called also by many *Acanthus* or *Acanthe*, because of its Prickles. This Kind was also common in Egypt, as well as in the Cyrenean Territories. Of these Thorns is *Demetrius* in *Athenæus* to be understood, where in his Account of Egypt he writes, “The “Country beyond this produces a Sort of *Acanthia*, [Thorn] a “Tree, which bears a round Fruit on twined Branches.” Hence the Poet calls them Berries, for a Berry is properly a round Fruit. *Servius* takes Virgil right, when he remarks, that it is plentiful in the Island Cercinna, where it is called *Acanthus*, because of its Prickles. It is certain that the Latins called a Gum *Acanthium*, because it was gathered from the Egyptian Thorn; and *Pliny* calls the Leaves of the Euphorbium *Acanthina*, which, it is certain, were prickly. Virgil's *Acanthus* is the very same which the Arabians call Sadar, and its Fruit Nabac. Under this Name *Avicenna* described the Tree Lotos of *Dioscorides*, and Interpreters say it was the Tree Al-fadar, which produces the Fruit Nabac. Others interpret it of the Fig-tree, or a great Tree. *Serapio* also calls it Sadar, and quotes the Lotos of *Dioscorides* under this Name. It is the same which *Bellonius* in his Observations calls Napeca, and, as he says, is named by the Greeks *Cenopolia*, and is an Evergreen. *Prosper Alpinus*, in his Book of the Egyptian Plants, takes Notice of it by the Name of Nabeca, and says it is a thorny Tree, though there is another Kind which is not thorny. *Leo Afer*, *Lib. 3. Cap. de Zarfa*, calls it Rabich instead of Nabich or Nabac; Thorny Trees whose Fruit is called, in the Arabian Tongue, Rabich, being less than Cherries, and tasting almost like Jujubes. He certainly means the same Fruit; but perhaps there is an Error in the Copy, or the Arabians of Barbary call that Rabic which the Eastern Arabians named Nabac. That it is the Connarus of *Agathocles* in *Athenæus* is plain by the Description; for he furnishes the Tree with Thorns and every thing else that answers to the Fruit Nabac. He also says, that they make Meal of the dried Berries: “The Fruit is “eaten green, and when it is dry they make Meal of it, but do “not knead it into Lumps, nor work it up with Water, when “they have reduced the Berries to Powder, but after an odd “Manner use it raw as it comes.” This one Thing, *Alpinus* confesses, was his principal Reason why he could not believe the Napeca to be the Connarus of *Agathocles*, viz. because he never observed in Egypt that they made Meal of it. But certainly he stumbled at a Straw; for he might have read that nothing is more frequently mentioned among the more modern Greeks than Meal of Nabac, (*ἀλσιτα*) that is, of the Nabacine or Lotine Berries, when they are dry, and that, in the latest Times, a Meal was made of them for medicinal Purposes. That he did not observe such a Thing in Egypt in his Time, is but a slender Proof that it was never done there. *Charito* in the Composition of a Pulvis Cœliacus, which is also good to stay Vomiting, “Take, says he, the Meal [Al- “phita] of Nabac, Guberes, Hypocystis, Xylonnos, and Suc.” These are all of an astringent Quality, as the Fruit of the Lotos is known to be. The Guberes are the Gubere of *Avicenna*, in Latin, Corna, the Fruit of the Cornel or wild Cherry-tree. The same *Charito* in another Place calls them Gomberes. An old Expositor of Arabian Words makes Suc to be the *Galia Muscata*. The same *Charito*, in another Place, “[Take] the Meal of Nabac of Bdellium, and Guberes,” in
a Tro-

a Trochise, prepared for cœliacal and dysenterical Patients. The Alphita Nabac is said to be the Savich Alnabach of Avifena. For Savich or Suich signifies Barley bruised and roasted, which the Greeks mean by *Ἀλφίτον*. This Savich Nabac is a Styptick as well as the Fruit. The Fruit and Stones of the Nabac don't seem to Alpinus to agree with the Fruit and Stones of the Connarus; because the Stone of the Nabac is round, but that of the Connarus oblong like an Olive-stone. For so relates Agathocles in Athenæus, "The Fruit tastes very sweet, is of the Size of a Phaulian Olive, and is like it in Pulp and Stone." He does not seem to have considered of what Olive Agathocles speaks, who does not compare the Stone of the Connarus to that of an Olive in general, but of a Phaulian Olive, which is a round Olive. Polybius, in his Description of the African Lotos, which is the same as the Connarus, makes its Fruit to be "of the Size of a round Olive." Alpinus says, the Nabac is thorny like the Acacia. Herodotus says the same Thing of the Cyrenian Lotos, when he makes it very like the Egyptian Thorn, which is the Acacia of the Moderns.—— This then is the *Acanthus* of Virgil, evergreen, bacciferous, and exotic to Italy. Of the same Kind is the African PALIURUS, which Theophrastus enumerates among the Species of Lotos, and says it is fuller of Shoots and Branches than the common Lotos. Athenæus joins the Connarus and Paliurus, and Hesychius says, the Connarus is a Tree in Fruit like the Paliurus. Agathocles himself says, the Connarus has Thorns; and the Paliurus too is thorny, for a Kind of Thorn in Greece is so called; and the Polybian Lotos in Athenæus is armed with Prickles, "The Lotos is not a great Tree, but rough and thorny." He speaks of the Lybian Lotos, which is certainly the same which Leo Afer calls Rabich, which is the same as Nabac; for N and R are often changed into one another. Among the Species of Lotos reckoned up by Theophrastus, there are none thorny but the Paliurus, which took its Name from its Likeness to the Greek Paliurus. Therefore it cannot be doubted, but the African Paliurus was thorny, and the Arabian Sadar, whose Fruit is Nabac. There are two Kinds of it, the Thorny, and the Smooth: The Thorny, it is plain, are the Paliurus, the Connarus, the *Acanthus* of Virgil, and the *Ἀκανθὴ Ἀργυρτρία* of Demetrius. As to the Lotos Lathagitis of Theophrastus, it appears by the Description to be the red Jujube. As to the common Lotos, which Pliny relates to have been transplanted out of Africa into Italy, but to have degenerated with Change of Soil, it can be no other than the Azadarat of the Herbalists, and the **** of Avifena. For there is no Species of Lotos at this Time in Italy, except this which is cultivated for its Shade, being one of the larger Sort of Trees. Avifena writes, that it is a great Tree, and bears a Fruit like the Nabac. I doubt not but the Antients took it for the Lotos, by which Name they called it, and mean the same, when they say, the "Lotos is a great Tree, and of a good Bigness." But the true Lotos is not over large, whereas this is tall, and spreads extremely; its Leaves shading all around, and extending themselves to the neighbouring Houses, according to Pliny. The common Lotos went at Rome by the Name of the Grecian and Syrian Bean, and indeed they were very plentiful in those Countries. The other Lotos Pliny calls a transmarine Plant, which was quite a Stranger to Italy. The Fruit of this Lotos being no smaller than a Cherry, it is strange that Dioscorides, in making its Bigness, should draw his Comparison from Pepper: "It bears a Fruit, says he, bigger than Pepper." This Passage can be understood in no other Sense, but that the Lotos bears a Fruit but little bigger than Pepper. It is a Wonder too, that, when there are so many Species of Lotos, he mentions but one. But it is a common Thing for him, inconsiderately, to involve many Species under one Appellation. But the Interpreters also of Avifena are grievously mistaken, when they render Hab almenen, which is said, Avif. Cap. 305. to be bigger than Pepper, and almost of the same Colour, by the Fruit of the Lotos Tree. Nay, they note too in the Margin, that the same is repeated, Cap. 520, in which Place the Nabac is described as the Berry of a Tree, that is, of the Lotos. These are quite different Things. The Arabians seldom use Hab for the Fruit of Trees, but pretty commonly for the Seeds of Herbs. I am not ignorant, that the Word may be read in Avifena as applied to the Pine, the Laurel, the Turpentine-tree, and the Ben-nut; but it is rather used for the inner Stone, or Kernel, than for the whole Fruit; as, in an Apple or Pear, they would not call the whole Fruit Hab, but the Seed which is within. They do not call a Pine-nut Hab alscunbar, but the Kernel. These are the Seeds from which sown Trees are propagated, and answer to the Seed of Herbs. The Berry of the Lotos is like the Cherry with all its Pulp about it. This Pulp is what the Greeks call *Πειραδριον*, but the Stone within, Nucleus, is the proper *Καρπός* of the Greeks. I do not deny, but Hab almenon may be used to signify the Nucleus of the Berry of the Lotos; but for the whole Berry, which is called Nabac, it can by no Means be taken. The Grain, Almenen, Avifena will have to be hot and dry in the second Degree, but the Nabac tempered with moist and dry. When he says the Almenen is bigger than Pepper, and is easily broken and separated from the Medulla, which is extraordinary white, it is plain that he

speaks of the Stone, or Nucleus. Whatever other Fruits of Trees consist of an unctuous Medulla, may doubtless be rightly called by the Arabian Word Hab; as the Berries of Laurel, the Ben-nut, the Fruit of the Turpentine Tree, and such like: But as for those which consist of an eatable Pulp, and a Stone within it, in these the Stone, which is in the Place of Seed, is properly called Hab, and by the Greeks *Καρπός* and *Πυρήν*, when Fruits that have no Stone are called *ἀσπύρηνα*. Salmasius de Hom. Hyl. Iatr. Cap.

OF ACANTHI.

The Greek Word *Ἀκανθός*, signifies a Thorn, or a Thistle, and is the same as *Ἀκανθα*, being general Names for all Kinds of Thorns or Thistles; thus *δξύακανθος* and *δξύακανθα* are the same. The *Ἀκανθα Ἀργυρτρία* in Theophrastus is a thorny Tree, which in many other Places he calls *Ἀκανθα Ἀργυρτρία*. This Name, among the Greeks, became appropriated to a Topiarian Plant, which the Latins also, keeping the Greek Word, call *Acanthus*;

—— *Ἐφ' ἑξὶ ταχυτέμνιν ὕμιν Acanthi,*

and in many other Places. But this *Acanthus*, especially the Topiarian and Garden Kind, had no Thorns; for the wild thorny Kind is called *Ἀκανθὸς ἀγρία*. The Greeks also called *Ἀκανθα*, in an absolute Sense, what the Latins name Carduus, which has a Head like a Pine-apple, and is eatable, "Cinara; for so we find the *Acantha* was called by the Dorian Poet" Pollux. The Latins also called it Carduus, by Way of Eminence. Hence in the old Glossaries Cardui, *κινδραί*. From this Homonymy Dioscorides, under the Word *Ἀκανθός*, which some Editions read *Ἀκανθά*, seems to have described both the Topiarian *Acanthus*, and the Carduus, confounding the Characters. Our Herbalists take it for granted, that the *Acanthus* of the Antients is what they now call Brank Urfine. Dioscorides gives the Topiarian *Acanthus* a Thyrsoidal Head: But it is evident that Brank Urfine has no such Head, as we see in the Carduus or Cinara [Artichoke]. Dioscorides did not describe the Cinara; for they are mistaken who think it was the Scolymus. Only the Root of the Scolymus is eatable, according to Theophrastus. Dioscorides says, that the young Shoots are fit to eat, but the Carduus, or Cinara, has something in the Figure of a Pine-apple, which is eaten, that is, this Thyrsoidal Head. When, therefore, he had read that the *Acantha* had a Thyrsoidal Head, which was to be understood of the Carduus Cinara, he took it for the *Acantha* Topiaria, which is also called *Acantha* absolutely. But Dioscorides is the rather to be pardoned, because, perhaps, he did not know the Carduus: For Theophrastus expressly says, that the *Ἀκανθός*, so he calls the Carduus, did not grow in Greece. But there is a great Similitude between the *Acanthus* and the Carduus, especially the smooth *Acanthus*. Columella of the Cinara or Carduus thus sings,

*Nunc similis Caëto spinisque minantibus horret,
Pallida nonnunquam tortos imitatur Acanthos;*

Dioscorides being deceived with this Similitude, and the *ἄμυμνα*, gives the *Acanthus* a Thyrsoidal Head, which is proper to the *Ἀκανθα*, or Carduus. It seems as if Dioscorides alone was mistaken in this Matter, because Pliny, in his Description of the *Acanthus*, says nothing of its Thyrsoidal Head; which proves also that he took his Account of the *Acanthus*, as he did that of the rest of the Plants, not from Dioscorides, but another Author, since he passes by so remarkable a Characteristic. "Its Seed is oblong, of a yellow Colour, and the Plant has a Thyrsoidal Head." Dioscorides de Acantho. In order to prove that the *Acanthus* has not a Head like the Thyrsus, but that such a Head belongs to the Species of Carduus, which we call Artichoke, we must explain what is meant by *κεφαλή θυρσοειδής*, Thyrsoidal Head. The Thyrsus was a Staff belonging to Bacchus, which had on the Top the Figure of a Pine-cone with a Ribbon tied in a Knot, and the Ends hanging down on each Side. This is the Figure of the Thyrsus in antique Sculptures. Some Authors assure us that it was a real Pine-cone, which was placed on the Top of the Thyrsus, and the Greeks especially call it *Κῶνος*, and the Thyrsus *Κωνοφόρος*. The Epigram on the Dedication of the Bacchanalian Instruments has

Καὶ θύρσῳ χλωρὸν κωνοφόρῳ κάμακα:

κωνοφόρος θύρσος, which has a *κῶνος* at the Top, that is, a Pine-cone. In the Grammarians we find *κωνοφόρος*, *θυρσοφόρος*, The botryceid [like a Cluster of Grapes] Fruit of the Pine, which the Women carried in the Ceremonies of Bacchus, is called a Cone, because the Figure of a Cone is like that of a Man's Heart. Now the Greeks say, that Bacchus presides over that Part of Man, and therefore they performed that Ceremony in their domestic Mysteries. Hence the Matter of Fact is certain, though the Reason given for it be but a Trifle. The religious Rites of Bacchus were akin to those of the Mother of the Gods. They had the same Rites and Symbols. Hence in the Bacchæ, a Tragedy of

of Euripides, Bacchus says, Πίνε μιντὸς ἑμαθ' ἐνρήματα. Now the Pine was sacred to the Mother of the Gods, and every Year, on a stated Day, was carried into her Sanctuary. Arnobius, Lib. V. The Day was the eleventh of the Calends of April, as it is marked in the Roman Calendar of Constantine the Great, with *Arbor intrat*; which must be understood of the Intromission of the Pine into the Sanctuary of the Mother of the Gods. The following Days were dedicated to various Solemnities of the same Goddess; as *Sanguinis Dies*, in the same Calendar, marked at the Ninth of the Calends of April. *Hilaria*, at the eighth; *Requies*, at the Seventh; *Lavatio*, at the Sixth. The Poet calls Pine-cones the Apples of Cybele, *Poma fumus Cybeles*. The Pine was also accounted holy to Liber and Neptune, Πίνυς ἱερὰ Διὸς καὶ Ποσειδῶνι. Artemidorus. And the Strobilus, or Pine-cone, is enumerated among the Play-things with which the Titans amused the Infant Bacchus, by Orpheus in his Mysteries, thus

Κῶνοι καὶ ῥόμβοι, παίγνια καμπεσίγυα,
Μήλατε χρίσας, καλὰ, παρ' Ἑσπερίδων λιγυρῶν.

These Verses are cited by Clemens in his Protrepticon, where he also informs us that all these παίγνια were afterwards received as Symbols in the Mysteries of Bacchus. "It may be of Service, for your Conviction, to set before your Eyes the useless and insignificant Utensils of your religious Worship, as the Dye, the Sphere, the Pine-cone, [εῤῥόβιλος] the Apple, the Top, the Looking-glass, and the Fleece." &c. In this Passage Clemens interprets the κῶνοι of Orpheus by εῤῥόβιλοι, that is, Pine-cones. Arnobius therefore was in the wrong, when he rendered εῤῥόβιλος and κῶνος by Turbines in his Book V. It is certain that the Greeks used εῤῥόβιλος, and κῶνος, and also εῤῥόμβος for a Boy's Play-thing, called by the Latins, Turbo, [a Top]; but in this Place we are sure he means a Pine-cone, as the ancient Scholiast, in the King's excellent Copy, rightly observed, κῶνοι δὲ εῤῥόβιλοι καὶ οἱ θύρσοι. Ὁ Διογενεῖας. And these are the Pine-cones, the Symbols of the Rites of Bacchus, which the Bacchæ carried on the Top of their Thyrsi; these made the θυρσοειδῆ κεφαλὴν, as we see it in ancient Monuments. For this Reason Grammarians interpret θύρσους by κῶνες, because they have Pine-cones on their Tops, Κῶνοι, οἱ θύρσοι καὶ εῤῥόβιλοι, Hesychius. Of the same Shape are the Heads of the Cardui, [Artichoke] being made up of Leaves placed like Scales, and running up to a Point like a Top, forming a Cone. Thus Columella of the Cinara,

Nunc pinea vertice surgit.

This is the Carduus with a κεφαλὴ θυρσοειδῆς, not the *Acanthus*, which, if it be Brank-Ursine, as no Body doubts, has a Head very different from the Figure of a Pine-cone, or rather no Head at all. There is no Doubt to be made then, but Dioscorides confounded the Marks of ἀκανθα, properly so called, with those of ἀκανθος. The first has a κεφαλὴ θυρσοειδῆς, which rises like a Pine-cone; the other has no such Thing. We have many other Plants left us described by the Antients, with the Head of a Thyrsus, which are known by the very Character not to be the same as our modern Herbalists would have them. Dioscorides describes the Alisma to have καυλὸς λεπτὸς, ἀπλὸς, ὑπερ πῆχυν, ἔχων κεφάλιον θυρσοειδῆς: that is, "a slender, plain Stalk, above a Cubit high, having at Top the Head of a Thyrsus, or like a Thyrsus." How this Place has been tortured and interpolated by very learned Interpreters, for want of knowing the κεφάλιον θυρσοειδῆς. From the same Ignorance they take Plants for the Alisma, which have not that Characteristic. Pliny spoke right of the Alisma, and according to the Mind of Dioscorides, though he had it not from him: *Caulis simplicis ac tenuis, cubitali, capite Thyrsi*. We are therefore to search for such a Plant with a Thyrsoidal Head, as is here described, that it may be the true Alisma. The *Thymum Græcum*, that has the Epithet of κεφαλωτόν, bears the Head of a Thyrsus, whence it is called by the Greeks θυρσίον. The little Heads of the Cirsum are θυρσοειδῆ, and are therefore by Apuleius called Thyrsiculi, i. e. κωνία (for θύρσοι are κῶνοι). *Herba Cirsum Thyrsi est bicubitali, trigono, inferiori summitate rotunda, cum Thyrsiculis purpureis atque canescentibus*. This Character shews that the Cirsum or Cirsson is not the Bugloss of Leoniceus, which has no small Heads of that Shape. The *Herba impia* (or Filago) in Pliny, Lib. 24. Cap. 19. *Thyrsi modo vestita atque capitata*. Hence note, that the Thyrsi were not only headed but clothed; and indeed the Stem of the Thyrsus was, for the most Part, bound about with Ivy. Whence the θύρσοι βρέμοντες κατακλίνουσιν πλοκάμους in Anacreon. Nothing is more common in Authors, especially the Poets, than Thyrsos hedera velatos & Frondibus amictos, which, it is plain, must be understood of the Staff of the Thyrsus arrayed with Ivy Leaves. Pliny, Lib. 16. Cap. 34. speaking of Ivy, says, "that Alexander, for the Novelty of the Thing, returned from India with his

"conquering Army, crowned with Ivy, after the Example of Liber Pater; and the Thracians used it in their sacred Solemnities to adorn the Thyrsi of the afore said Deity, and their Helmets and Shields." You see the Thyrsi were adorned with Ivy, which was so trite and obvious a Circumstance among the Poets, that the Author of a Greek Epigram on a female Votary of Bacchus, who forsook the Service, and consecrated her Arms, puts κίσσος for Thyrsus,

παρεβρίψαυ δὲ κίσσον,
χῆρα πεισοφίγξω χρυσοδέτω σπατάλη.

Anacreon in an Epigram, where he had first named θύρσος, as ἡ πὺν θύρσος ἔχου Ἑλικωνίας, soon after substitutes κίσσος, to express the same Thing,

Διωνύσω δὲ φέρει
Κίσσον καὶ σατυλὴν.

that is, the Thyrsus adorned with Ivy. Euripides in his Bacchæ has κίσσινον βέλτρον for a Thyrsus,

Ἄλλ' ὅπου μὲν κίσσινον βέλτρον μέτα;

In another Place he has κίσσινος θύρσος, and in the same Tragedy represents the Thyrsi crowned and adorned with Ivy, and in many Places thereof the Thyrsus is called κίσσινον βέλτρον and κίσσινον κλάδον. So the Poet,

Et Folis lentas intexere mollibus Hastas.

He means the Thyrsi woven about and enwrapped in the Leaves of Ivy. Hence the Sutiles Thyrsi in the Priapeia; which were woven about with the sewed Leaves of Ivy;

Liber sutilibus committit praelia Thyrsis.

The Thyrsi were covered with Ivy-leaves sewed to one another. So the Sutiles Rosæ, of which were made the Coronæ Sutiles.

I have been the more prolix on this Subject, because I know some Men, who would seem to know more than the vulgar Learned, incapable of being convinced, that the Thyrsi were arrayed with Ivy, because in their precious Stones and antique Monuments they see nothing but a smooth Pole, with a bare Head like a Pine-cone, and a Ribbon hanging down on each Side. But I do not see the Wisdom of giving Credit to a few Stones against the Testimony of so many Authors. Certainly nothing can be more silly than a Sort of Antiquaries, who derive all their Knowledge from Stones, whether wrought with Letters or Figures. What they cannot find in Stones, they believe exists no where. Such is the Literature of curious but injudicious Persons. For the same Reason will they deny that there were any Thyrsi which had their Point covered with Ivy, because their Stones afford no such Figure. But we have abundant Mention of them in the Books of ancient Authors, which are the true and certain Monuments of Antiquity. Macrobius, to begin with the slightest, in Lib. 1. "The Lacedæmonians worshipped also the Image of Liber Pater, holding a Spear, not a Thyrsus; for when he holds a Thyrsus, what does he more than carry a covered Weapon, whose Point is enwrapped and hid in lambent Ivy?" Macrobius here seems to think that the Thyrsus was nothing but a Weapon, whose Point was covered with Ivy. And indeed it is certain there were Thyrsi of this Form, but very different from those we have explained, which had a Pine-cone for their Head. Nay, even that Spear, held by the Image of Liber Pater, which was worshipped at Lacedæmon, was such a Sort of Thyrsus with its Point wrapped in Ivy. They were called λογχωτοὶ θύρσοι, and in one Word θυρσολόγχαι, which signifies, headed like a Spear, whose Iron was enveloped and hid by the Ivy. Justin Martyr mentions them, "The Bacchæ, says he, under an Appearance of Peace, carry λόγχαι prefixed to their Thyrsi. Properly λόγχη signifies the Iron or pointed Head of a Spear, whence λελογχωμένα ἀκόντια, præpilatæ hastæ, aut pilo inspicatæ; Spears headed or pointed with Iron. Præpilatæ in another Sense is the same as ἐσθλαμένα, rounded, not from Pilon, a pointed Iron, but Pila, a Ball, which was fixed on the Point of their Spears, when they skirmished in Sport. I have seen learned Men at a Loss here. In the Greek Epigram on the Priestess of Bacchus renouncing her Profession, and consecrating her Arms,

καὶ τὸ δίδυρον
Τῆτο τὸ λογχωτόν καὶ τὸ περισφύραον.

this Pair of Spears or Thyrsi were headed with Iron. In the Asterisms in Proclus, the Centaur holds θυρσολόγχην. Ptolemy calls it barely θύρσον. Among the threatening Arms of the Gods carrying Fear and Death, Strabo reckons θυρσολόχα θπλα. Lib. 1. There were two Sorts of Thyrsi then; one had a λόγχη with a Point, but covered with Ivy, that it should not

not appear; and the other had a Pine-Cone placed on it. The Bearers of the first were *θυρολόγοι*, of the other *κονοφόροι*. Both Thyrsi were adorned with Ivy. The old Epigram *καὶ θύρῳ, ἔς. c.* before-mentioned, calls the Staff of the Thyrsus green, because of the Leaves of Ivy which covered it: This was a harmless Thyrsus, that had no Iron. Hence Euripides introduces his Bacchæ tearing and scattering abroad the Bodies of Bulls *χιρὸς ἀσιδήρῳ μίτα*, which he would not have said, had their Thyrsi been headed with Iron. Sometimes the bare Staff, bound with Ivy, served for the Thyrsus; as it appears in that extraordinary fine Agate, which represents the Orgia of Bacchus in Sculpture, explained by Scaliger and Casaubon. One of the Bacchæ is there seen holding a Staff, bound about with Ivy Leaves instead of a Thyrsus. He that denies it to be a Thyrsus, does but trifle; tho' it has neither the conoidal Head, nor the Point enveloped with Ivy. Sometimes the Thyrsi were covered with Garlands and Ribbons, instead of Ivy. Athenæus, *lib. v.* speaking of a Procession in the Bacchanalia, says, "They had in their left Hand a Thyrsus crowned with Garlands." No precious Stones, or others, represent such a one; nor do I remember ever to have seen it painted on Walls.

Now, since the *θυροειδὴς κεφαλὴ* is named by Authors, and the Heads of some Plants likened to it, it is reasonable we should understand it of the Thyrsi with a Pine-Cone Head, which was by far the most common Form of the Thyrsus. Such a one is very conspicuous in the Carduus, not in the Topiarian Acanthus; which Dioscorides confounded with the Acanthus properly so called, which is the Carduus.

Of the Ægyptian Papyrus, to which Pliny in like Manner assigns the Head of a Thyrsus, it is harder to determine. The Bush of Hair of the Papyrus, as drawn by those who have seen it, has nothing which can allude to such a Shape. It does not rise turbinated into a Cone, but rather from a narrow Base grows wider. He who has seen the thick Knot of Fringe which they call Houpe, a *TUFT*, may think he has seen the Bush of Hair of the Papyrus. It is also much like the Whisks used to brush dusty Clothes. Strabo says no more of the Papyrus, than that it has a slender Stalk, *ἐπ' ἄκρῳ ἔχουσα χαίτην*, which has a Bush of Hair at the Top; but of what Figure he does not inform us. Pliny thus expresses himself, *Decem non amplius cubitorum longitudine, in gracilitatem fastigatum Thyrsi modo cacumen includens*; Here you see the Head of the Papyrus running up slender like a Thyrsus. He means the *τὸ ἄκρον*, and the *τὴν χαίτην*, which it bears, *ἐπ' ἄκρῳ*. But 'tis very false that it ends in a Point like a Line, after the Manner of a Thyrsus. Nor does it mend the Matter to say, that learned Men, who had been in Ægypt, had a Draught made of the Plant when it was in its Perfection; and the Hair opened and spread, which before its Expansion was contracted and drawn up into a conic Form. It is plain by the Figure, that it begins to expand at its first Appearance, as we see it happen in almost all umbelliferous Plants: For in this, from a slender Base it spreads itself at the Top: but the contrary happens in such as first are contracted into a Cone, and afterwards expanded and enlarged by Maturity, like the Artichoke when it flowers. And Lobel expressly informs us, that the Bush of Hair of the Papyrus, which is its Flower, does not spread like that of the Cyperus, but is rather compressed like that of Fennel Gyant. Pliny translated his Account of the Papyrus *verbatim* from the Greek of Theophrastus, which in the common Edition reads, *κόμην ἔχοντα ἀχρεῖαν ἀσθινῇ, καρπὸν δὲ ὅλως ἐδίνα*. Pliny renders it *in gracilitatem, ἔς. c.* as before. When I saw the Latin was translated from the Greek, and the Greek manifestly corrupted by the Latin, I endeavoured to amend it, by reading *κόμην ἔχοντα ἀκρίαν θυροειδῆ*. Nor indeed otherwise could I have thought that Pliny had fairly translated his Author. Now I have not so good an Opinion of Pliny, as not to have a better of Truth, which agrees very ill with what Pliny says of the Hair of the Papyrus, that it runs up to a Point like the Thyrsus. If Theophrastus recorded the same, he has not regarded the Truth: But as his Words are corrupted, he might appeal from Pliny's Version, or his own corrupt Text to the true and genuine Reading as he wrote it. I suppose he wrote *κόμην ἔχοντα; ναρθηκίην* instead of *ἀχρεῖαν ἀσθινῇ*. Try your utmost, it is the truest and most genuine Reading you can come at. Pliny himself, who constantly takes *ναρθηκῆ* for Thyrsus, shews that Theophrastus wrote it thus. Of this we have a fair Example under Euphorbium, which by the Greeks is described to be *δένδρον ναρθηκώιδες*. Pliny translates it *Specie Thyrsi*. In the Place under Debate, by the true Greek Copy, the Papyrus hath *κόμην ναρθηκίην*, which Pliny renders *Thyrsi modo fastigatum in gracilitatem cacumen*. *Νάρθηξ* was something carried by the Greeks in Honour of Bacchus, as well as *θύρσος*; whence there are *ναρθηκοφόροι βάκχοι* and *θυροφόροι*. Authors often put one for the other; *ναρθηκὶ βακχίῳ* and *θύρσῳ βακχίῳ* are frequent with the Greeks. The *ναρθηξ* was properly a Staff or Rod cut out of the Shrub Ferula [Fennel Gyant]. Masters struck Scholars on the Hand with it; whence *ferulae magistralis*. Because it was light and spungy, a Blow with it did no Harm; and for that Reason was used to chastise School-boys, who are said by the Satirist *manum ferulae subducere*. It is also used for any Stick or

Rod that is a fit Instrument of Castigation; on which Account it may be called also a Thyrsus; for *θύρσος* sometimes is a plain Staff. Euripides calls it *βάκτρην κίσσινον*, and *κίσσινον κλάδον*, a Staff bound with Ivy. In Hesychius *θύρσος, ῥαβδος, βακτηρία βακχική, ἢ κλάδος*. It is also a *ναρθηξ*, but properly of the Ferula Shrub. Pliny, *lib. xiii. cap. 22.* says of the Ferula, "that no Wood was lighter; for which Reason, being easy to be carried, it was chosen by Old Age for a Staff." Old Satyrs are commonly introduced in the Company of Bacchus with a Ferula. These are the *ναρθηκοφόροι*. The Bacchæ usually went with Thyrsi, which also may be called *ναρθηκῆς*, if they were made of the Ferula, as, on the contrary, the Ferula might go by the Name of Thyrsi, especially if carried in the Solemnities of Bacchus. The Stalks of Plants were also called Thyrsi by the Latins, which are also *ναρθηκῆς*, provided they be hollow, as are Reeds, and all those of the ferulaceous Kind. Therefore the *ναρθηξ* and the *θύρσος*, being both carried by the Bacchantes, might the sooner be taken one for another. However they differ not a little. The Thyrsus was sometimes a Bacchian Spear with an Iron Point, enveloped and covered with Ivy. This was the *λογχῶδες θύρσος*. At other Times the Thyrsus was a Staff, likewise enveloped with Ivy, or without Ivy; and having on its Top a Pine-Cone, which was one of the Symbols of Bacchus. This is the *κονοφόρος θύρσος*, from whence comes the *κεφαλὴ θυροειδῆς* in many Plants. But the *ναρθηξ* is the Plant itself, called by the Latins Ferula; which being consecrated to Bacchus, was on that account borne by the Bacchantes. Pliny, *lib. xxiv. cap. 1.* says, "the Ferula is delicious Food to Asses, but mortal Poison to other Cattle;" wherefore that Animal is dedicated to *Liber Pater*; to whom the Ferula was consecrated. The Greeks write, that the Ferula was sacred to Bacchus, because Fire used to be kept in it; for Wine also was of an igneous Quality. *Ὅν τῷ πυρὶ ἴσον ἔχει μῖνον*. The Person, in the Greek Tragedian, says, "I search for a Fountain of Fire that lies hid in the Ferula." Hesychius, "laid up in the Ferula; for they made Use of the Ferula to kindle their Fires; whence it was appropriated to Bacchus, both on account of the Bonfires at their Feasts, and because Wine is of a hot and fiery Nature." It is a noted Fable of Prometheus, who brought the Fire he stole from Heaven to Mortals in a Ferula. Other Reasons are given why the Antients consecrated this Shrub to Bacchus. It is a light and hollow Plant, and is therefore very suitable to an idle and everlastingly drunken Deity. Bacchus himself carries one in the Bacchæ. Euripides, *ὁ βακχίος δ' ἔχων πυρσὺν φλόγα πύκας, ἐκ ναρθηκος αἰσσοί*. Interpreters render this, *gestans ignitam facem picea, quæ ex ferula emicat*; which is ridiculous and absurd. The Fire is laid up and preserved in the Ferula, does not *emicare*, burst out of it. Hence *ναρθηξ πυρικότας* in the Epigram, in which the Fire is kept inclosed. The Poet's Meaning is, that Bacchus carrying both a Torch and Ferula would spring forth. Torches, *i. e. αἱ πύκας*, as well as Thyrsi and Ferula, were used in the Orgia of Bacchus. Hence some expound *θύρσος* by *λαμπάδας*, as others *ναρθηκῆς* by Thyrsos. Hesychius, *θύρσοι, κλάδοι, λαμπάδες, λόγχοι*. These are the three different Arms of the Bacchantes, the Thyrsi, the Torches, and the Ferula. The same Euripides plainly distinguishes *θύρσος* from *ναρθηκῆς* in these Words:

Θύρσον δὲ τὴν λαβὺς ἔς.

i. e. "One struck the Rock with a Thyrsus; and there gushed out Water; another smote the Ground with her Ferula, and the God sent forth Wine." Silvanus in the Poet is said to come shaking Ferulae and Lillies,

*Venit et agresti capiti Silvanus honore,
Florentes Ferulas et grandia Lilia quaffans.*

Which must be understood of the true Shrub of the Ferula. Bacchus also *ἐκ ναρθηκος αἰσσοί*, in the Tragedian, shakes a true Ferula which was consecrated to him; whence there were *ναρθηκοφόροι* in his Mysteries as well as *θυροφόροι*. It is a very noted proverbial Verse.

Πολλοὶ μὲν ναρθηκοφόροι, παυροὶ δὲ τι βάκχοι.

Because they were also *θυροφόροι*; whence many Interpreters rendered *ναρθηκῆς* as if it were *θύρσος*. Among these was Pliny, who took *ναρθηκίην κόμην* of the Papyrus to mean such as was like the Head of a Thyrsus. But the Philosopher spoke of the Top of the Ferula Shrub.

That the Ferulas of the Schools were made of this Shrub, Martial clearly shews in this Distich,

*Invisa nimium Pueris, grataque Magistris,
Clara Prometheo munere ligna fumus.*

The same is plain from the Greek Epigram on a Schoolmaster dedicating his Stock, after leaving his Employment, *viz.*

*Σκῆπτρα προποδᾶν, ἱμαντα τὴν πυρικόταν
Νάρθηκα, μετὰ φωνὴν πλακτοῖα ἰππίαχον.*

I read *πυρικόταν νάρθηκα*, instead of *παρικόταν* in the Copy: In Suidas it stands *παικίτην*. The Epithet *πυρικότας* bestowed on the Ferula, is an Elegancy expressing its Use in holding and

keeping

keeping of Fire. Of the same Ferula was the Physicians Malleus, *μάλης*, which, tho' afterwards made of Ivory, retained its ancient Name. *Martial*.

Artis ebur medicæ Narthecia cernis habere.

Gloss. Malleus, μάλης ἱατρικῆς. Hence Martial joined these Narthecia with Whips and Ferulas; and hence *ναρθηκισμὸς* in Dioscorides, which relates to that *ἐπίκρουσις*, Pulsation, exercised on the Bodies of venal Slaves, in order to recall the Blood and Spirits into the extenuated Parts, by frequent Strokes of the Ferula. This is the *μάλης ἱατρικῆς* of the Glossary, which renders it Malleus. But I do not think that Martial's Narthecia are to be taken in this Sense, tho' soon after the Subject of Whips and Ferulas follows. No; for *μάλης*, or *ναρθήκιον*, signifies a little Pot or Box to hold Ointments, and the Design of the Poet plainly shews that it must so be understood in this Place. "Thou seest, says he, that Narthecia of Ivory contain the Gifts of the medical Art, which Pæcius had rather were his own;" that is, Ointments.

Hence the ancient Physicians often gave this Title to the Books which they composed on the Art of Medicine. *Galen, lib. v. De Comp. Medic. secundum Genera, cap. 3.* "Eras, says he, composed a Treatise of the Composition of Medicines, which he intitled *Νάρθηξ*." He mentions also the *Νάρθηξ* of Cratippus, which was a Book of Compositions. The *Νάρθηξ* of Soranus is cited by Aetius. The *Νάρθηξ*, as I said, was a Box to keep Ointment, Myrothecium. Hence one of the most correct Copies of Homer went by the Name of *Ἐκ τῆς νάρθηκος*. The Reason why it was called so was, as Strabo tells us, *lib. xiii.* because Alexander the Great had laid it up in a Box, *νάρθηκα*, most richly adorned, which he found in the Persian Treasury. This *νάρθηξ* is the same which Pliny calls *Scriinium unguentorum*, a Box of Ointment, adorned with Gold and precious Stones, which being found among the Spoils of Darius, was pitched upon as the fittest Repository for Homer's Works, that the most valuable Production of the human Genius should be laid up in the most exquisite Piece of human Workmanship. Scaliger was in the wrong when, in an Epistle, he interprets the *ναρθήκιον*, appointed by Alexander for the keeping of a correct Copy of Homer's Works, called *ἀπὸ τῆς νάρθηκος*, a more sacred Repository, in which Jewels were kept, or perhaps Ointments. Why Boxes of Ointment are so called I know not, except it be from the Form of a Ferula, which might give Occasion to call a round Box by that Name; for the Ferula is a light and hollow Sort of Wood, as being Reed-like, *καλαμώδης φύτον*. More than that, it was a Custom to gather sweet-scented Herbs into Bundles, and lay them between the Calami and the Ferulae, to preserve their Fragrancy. *Theophrastus, lib. ix. cap. 16.* Hence any Box or Repository for keeping Ointments, came to be called improperly *ναρθήκιον* and *νάρθηξ*. This is the very Truth. There is another *νάρθηξ* among the Physicians, signifying a Stay to a Bandage [Splints]. *Νάρθηξ* is also a Porch or Court belonging to the Temples and Cathedrals of the ancient Christians.

These Things were necessary to be explained, which, for want of knowing, have hitherto cast a Mist before the Eyes of Botanists as to the Meaning of *Ναρσοειδὲς κεφαλῆς*. The Grammarians expound *κωνίον* by *νάρθηξ*; not that *κωνίον* and *νάρθηξ*, Ferula and Cicuta, are the same, but because they are of a Ferulaceous Kind. The Greeks called it *κωνίον*, or *κώνιον*, because, when its Flower begins to pass into Seeds, it turbinates towards the Vertex, and forms the Figure of a Cone. This last Remark I thought necessary to be added.

ACANUS. A Species of Thistle, called *Acanus Theophrasti*. See **CARDUUS**.

ACAPNON. *Ἀκαπνόν*. A Name of the Sampsuchum, or Majoram. It also signifies dry Wood, from a Negative, and *καπνός* Smoke. *Garcinus*.

ACARDIOS. *Ἀκάρδιος*. Fearful, depressed, faint-hearted. *Castell*.

ACARI, or ACARUS. A small Insect, said by Aristotle to breed in Wax.

It signifies also an Insect like a Louse, which harbours in the Skin. *Castellus* from *Aldrovandus*, and *Pisò*.

ACARNA. The Fish Thistle. See **CARDUUS**.

ACARNAN. *Ἀκαρνάν*, *Ἀκαρνός*, *Ἀκαρνά*. A Sea Fish, mentioned by Athenæus, Rondeletius, and Aldrovandus. It is said to be easy of Digestion, and to afford good Nourishment. *Castell*.

ACARON. The wild Myrtle. *Blancard*.

ACARTUM. Red Lead; called also **AZEMAFOR**. *Rulandus*.

ACATALEPSIA. *Ἀκαταληψία*. Incomprehensibility, or Uncertainty in Science; the contrary of which is **CATALEPSIS**, *καταληψία*, certain Knowledge.

This Word is taken Notice of by *Castellus*; but I do not know why it claims a Place in a Medicinal Dictionary, except because it occurs in *Galen*.

ACATALIS. A Juniper-berry. *Constantine*.

ACATASTATOS. *Ἀκαταστάτος*, from a Negative, and *καθαίρω*, which, amongst other Significations, implies to fix, establish, or render certain. Inconstant.

This is applied to irregular Fevers, where the Periods of Exacerbation are uncertain, and the Appearances in the Urine perpetually changing.

It is also applied to shivering Fits in Fevers, which return at irregular Periods; sometimes every Day, sometimes every other Day, or every third Day.

Or it is applied to Urines, which are turbid, but do not depofite any regular Sediment.

ACATERA. The larger or black Juniper. *Blancard. Brunfelsius*.

ACATHARSIA. *Ἀκαθαρσία*, from a Negative, and *καθαίρω* to purge. It signifies an Impurity of the Humours. Thus Hippocrates, in his Treatise of Diseases, *l. iii.* informs us, that if the Head aches violently from a Plenitude of the Brain, 'tis a Sign the Blood is loaded with Impurities (*ἀκαθαρσίᾳ σημαίνει*). And in the same Book he says, in Apoplectic Cases, the Brain is filled with much Impurity (*πληθὴ πολλῆς ἀκαθαρσίας*).

It is also applied to the Sordes, or Impurities of Wounds.

ACATO, or ARAXOS. Soot. *Rulandus*.

ACAULIS, of a Negative, and *Caulis* a Stalk or Stem.

A Plant is said to be *Acaulis*, or without Stalk, whose Flower rests on the Ground.

CAULOS *magno Flore Casp. Baubin*, is the Carline Thistle.

ACAZDIR. Tin; called also **ALKAIN ALOMBA.** *Castellus. Rulandus. Johnson*.

ACCATEM. **ACCATUM.** The same as **AURICHALCUM**, which see.

ACCELERATORES URINÆ. So called from their Use in expediting the Ejection of Urine and Seed. Authors have been mistaken in the assigning the Originations of these Muscles, either to the Sphincter Ani or Tubercles of the Ossa Ischii. They arise fleshy from the superior Part of the Urethra, as it passes under the Ossa Pubis, and encompassing the external Part of the Bulb of its cavernous Body, both Muscles meet on the inferior Part, and march according to the Length of the Seam of the Skin in the Perinæum, parting from each other. They ascend to their Insertions on each Side the Corpora Cavernosa Penis.

Besides the Use commonly ascribed to these Muscles, in compressing the Urethra in driving out the Remains of Urine, and promoting the Ejaculation of the Semen in Coitu, (which Action is chiefly done by the last described Part of them embracing the Urethra as they pass to their Insertions on each Side the cavernous Bodies of the Penis) they also assist the Erectores Penis in its Erection, by driving the Blood contained in the Bulb of the cavernous Body of the Urethra towards the Glands in greater Quantities, whereby it becomes distended, the Veins which carry off the reflux Blood from the Corpus Cavernosum Urethrae, at that Time being also compressed by the Tumefaction of these Muscles. *Cooper*.

ACCESSIO. **ACCESSION.** It signifies the Beginning of a Paroxysm, or Fit of an Intermitting Fever.

ACCESSORIUS. Willis has given this Name to a particular Nerve.

The *Nervi Accessorii* belong to the eighth Pair, and arise by several Filaments from both Sides of the Medulla Spinalis of the Neck, sometimes higher and sometimes lower. Each of them runs up between the two nervous Planes which come out from the Spinal Marrow, to form the Vertebral Nerves, and they gradually increase in their Course upwards, by means of several Filaments which they receive from the posterior nervous Planes.

Having reached above the first Vertebra, each Nerve is fixed to the Backside of the Ganglion of the Nervus sub-occipitalis, or that of the tenth Pair; and having, at the upper Part of this Adhesion, received two Filaments from the posterior Portion of the Medulla, they part from the Ganglion, and continue their Course upward. These two Filaments are sometimes without any Communication with the Ganglion, or with the anterior Plane; so that they seem rather to belong to the *Nervus Accessorius* than to the Sub-Occipitalis.

They enter the Cranium by the great Occipital Foramen; and having communicated with the Origin of the Sub-Occipitalis, or Nerves of the tenth Pair, and with the great Hypoglossi or ninth Pair, they return out of the Cranium with the Nerves of the eighth Pair, or Sympathetici Medii, with which they communicate in their common Passage through the Cranium.

As soon as they get without the Cranium, each of them gives off a considerable Branch, which divides into two. One is very short, and immediately joins the Trunk of the eighth Pair; the other, which is longer, joins the small Portion or first Branch, which goes to the Tongue. They likewise communicate with the great Hypoglossus and Sympatheticus on each Side.

Afterwards the *Nervus Accessorius* runs backward, and perforating the Musculus Sterno-Mastoidæus, runs to the Trapezius, on which it is distributed, and terminates after having supplied the Rhomboides. In this Course it communicates with the first three Pairs of the Cervical Nerves, and gives Branches to the Glands of the Neck, to the Musculus Angularis of the Scapula, the Complexus, Occipitalis, and to the Integuments. *Winflow*.

A C-

ACCESSUS. It signifies the approaching, or having carnal Knowledge of a Woman.

ACCIB. Lead. *Rulandus. Johnson. Castellus.*

ACCIDENS. The same as SYMPTOM, which see.

ACCIPITER. ἄκπις. A Hawk, of which there are many Kinds. That mentioned by Dale is thus distinguished.

ACCIPITER, Offic. Schrod. v. 13. *Accipiter Fringillarius,* Mer. Pin. 170. Schw. A. 189. *Fringillarius Accipiter vulgo Nifus dictus,* Aldrov. Ornith. i. 344. *Accipiter Fringillarius,* Gesn. de Avib. 43. Jonf. de Avib. 10. Charlt. Exer. 72. *Accipiter Fringillarius seu Recentiorum Nifus,* Will. Ornith. 51. Raii Ornith. 86. Ejusd. Synop. A. 18. *Fringillarius,* Bellon. des Oyse. 122. The SPARROW-HAWK. Dale.

The whole Bird, its Food and Excrements are in Use.

Oil wherein a Hawk has been boiled, is said to cure Distempers of the Eyes, if they are anointed with it.

The same Virtue is in the Fat. The same Oil cures all Deformities of the Skin. The Excrements are of so heating a Quality, that Galen will not admit them as Part of the *Materia Medica.* But there are some who use them in Disorders of the Eyes; others however advise them in order to promote Delivery, taken inwardly, or by way of Suffumigation. Hippocrates and Pliny prescribe them against Barrenness. Dale.

ACCIPITRINA. The same as **HIERACIUM.** Hawk-weed.

ACCRETIO. ACCRETION, or Growth. See **NUTRITION.**

ACCUBITUS. This signifies lying together in the same Bed, without any Venereal Commerce.

ACCURTATORIA. A Synopsis, or Epitome. The Word is used by Raymond Lully.

ACCUSATIO. The same as **INDICATIO,** which see. *Castellus.*

ACEDIA. Ἀκηδία, from α Negative, and κηδος, Care. Carelessness, Neglect.

This Word occurs in *Hippocrates de Locis in Homine,* and embroils the Sentence not a little. The Interpreters translate it Panniculus, a Rag, from the Context and parallel Places in the same Author; tho' ἀκηδία signifies no such Thing. Foësius thinks the Passage corrupted; unless by ἀκηδία Hippocrates means a Rag that has been much worn, *not worth Care,* and good for nothing else. This Conjecture seems right, tho' Foësius does not think so himself.

ACEDIA is also used by Hippocrates in his Treatise on the Glands, to signify Trouble or Fatigue.

ACEPHALOS. Ἀκέφαλος, from α Negative, and κεφαλή a Head.

This is applied to Monsters born without Heads, of which there have been some Instances.

ACER. The Maple Tree; so called, according to Vossius, of *acris,* because of the very great Hardness of the Wood.

It hath jagged or angular Leaves; the Seeds grow together in hard-winged Vessels. *Miller.*

The CHARACTERS are;

1. **ACER majus,** Offic. Ger. 1299. Emac. 1484. Mor. Pin. 1. Raii Synopsis iii. 470. *Acer majus, multis falso Platanus,* J. B. i. 168. Raii Hist. ii. 1701. *Acer majus quibusdam Platanus dictum,* Chab. 61. *Acer majus Latifolium, Sycomorus falso dictum.* Park. Theat. 1425. *Acer montanum candidum,* C. B. Pin. 430. Tourn. Inst. 615. Elem. Bat. 488. Boerhaave Ind. A. ii. 134. Dill. Cat. Giff. 72. Rupp. Flor. Jan. 129. Buxb. 3. *Acer montanum candidum, aliis Platanus,* Jonf. Dendr. 131. *Acer majus, five Platanus Scotica Cardini,* Merc. Bat. i. 16. Phyt. Brit. 2. The GREAT MAPLE.

It grows in Walks and Church-yards, blossoms in May, and the Fruit is ripe in September. The Juice that distils from the wounded Tree is used in Physic, and supposed to be beneficial in scorbutic Disorders.

In the Beginning of Spring, when the new Buds swell with Juice, the Tree wounded in the Trunk, Branches or Roots, yields a sweet and potable Liquor in abundance, as the Birch does. *Buxb.* Some use it for their ordinary Drink. *Rupp.* The Inhabitants of Canada made a Sugar out of the Juice of this Tree. See *Aët. Philos. Lond.* N^o 171. p. 988. Dale.

2. **ACER,** Offic. Chab. 60. *Acer, Opulus,* Ment. Ind. 35. *Acer minus,* Ger. Emac. 1484. Raii Hist. ii. 1700. Synop. iii. 470. Mer. Pin. 2. Merc. Bat. ii. 16. Phyt. Brit. 2. *Acer minus five vulgare,* Park. Theat. 1415. *Acer campestre et minus,* C. B. Pin. 431. Tourn. Inst. 615. Elem. Bat. 488. Boerb. Ind. A. ii. 234. Dill. Cat. Giff. 55. Rupp. Flor. Jan. 129. Buxb. 3. *Acer campestre, aliis Opulus campestris veterum,* Jonf. Dendr. 132. *Acer vulgare minori folio,* J. B. 166. The MAPLE.

It is common in Hedges, and blossoms in May. The Root is used in Physic. Infused in Wine, it is with very good Success applied in Pains of the Liver. *Pliny. Dale.*

To these two Sorts Miller adds the following:

Acer majus Foliis eleganter variegatis, Hort. Edin. The greater Maple, with striped Leaves, commonly called the striped Sycomore.

ACER Virginianum, folio majore, subtus argenteo, supra viridi splendente. Pluk. Phyt. The Virginian flowering Maple.

ACER Americanum, folio majore, subtus argenteo, supra viridi splendente, floribus multis coccineis. The American flowering Maple, with larger Bunches of scarlet Flowers.

ACER maximum, foliis trifidis, vel quinquefidis Virginianum, Pluk. Phyt. The Virginian ash-leaved Maple.

ACER Platansides, Munt. The Norway Maple, with Plane-Tree Leaves.

ACER Platanoides foliis eleganter variegatis. The striped Norway Maple.

ACER trifolia, C. B. P. The Maple with a trifoliated Leaf.

There is another Sort of Maple, which is very common in Virginia, and is known by the Name of the Sugar Maple; from which Tree the Inhabitants of that Country make a very good Sort of Sugar, and in large Quantities. But this Tree is at present very rare in Europe; tho' I am of Opinion, that the People make Sugar from more than one Sort of Maple. M. Ray and Dr. Lister prepared a tolerable good Sort of Sugar from our greater Maple, by tapping some of the Trees in their bleeding Season; and I have observed, upon cutting off a Branch of the ash-leaved Maple in February, a great Quantity of a very sweet Juice hath flowed out for several Days together. *Miller.*

ACERATOS. Ἀκέραιος, from α Negative, and κερών, or κερώνυμι, to mix. Unmixed, uncorrupted. It is applied sometimes to the Humours of the Body by Hippocrates. Paulus Aegineta mentions a Plaster under this Name, but probably means *Aceron.* See **ACERIDES.**

ACERBUS. Στενυφής. Sour, Harsh. It is used to express such a sour Taste accompanied with Astringency; as we meet with in unripe Fruits.

Sometimes figuratively it signifies prickly, *ερεβναι ἀκαθαι.* *Dioscorides.*

ACERIDES. Ἀκέριδες, from α Negative, and κέρως Wax. Plaisters made without Wax are thus called. *Galen.*

ACEROSUS, of *Acus,* from ἄχρον Chaff. It is an Epithet of the most brown and coarse Sort of Bread, made of Flour not separated from the Bran.

ACESIAS: A Greek Physician. All that we know of him is, that he was so unfortunate in his Practice, that it gave Rise to a Proverb, *Ἀκισίας ἰδσαστο, Acisias has had it under Hand;* spoken of any Thing that grows worse for being taken Care of. This is quoted by many Collectors of Proverbs from *Aristophanes.*

An **ACESIAS,** in the Opinion of Fabricius, different from the above-mentioned, is taken Notice of by Athenæus, and numbered amongst the Writers on the Subject of Preserving or Pickling.

ACESIS. Ἀκισις. A Remedy, or Cure.

ACESIUS. The same as **TELESPHORUS,** or Evamerion, according to Pausanias. It is not known who or what is meant by this real or pretended Person. He is represented in the Figure of a Boy on some antient Medals struck at Pergamus, which are preserved in the Cabinets of the Curious. See **TELESPHORUS.**

ACESO. A Daughter of Æsculapius, fabled to have had great Knowledge in Physic. Le Clerc is of Opinion, that *Acso* means allegorically the Purity of the Air, refined by the Rays of the Sun, and rendered Medicinal and Restorative to those that respire it thus in Perfection.

ACESTA. Distempers which are curable. *Gorraus.*

ACESTIDES. Thus the Chimneys of Furnaces, where Brass was made, were called; contrived narrow at the Top, on purpose to receive the Fumes of the melting Metal, and collect them, that Cadmia might be produced in greater Quantities. *Dioscorides, Salmafii Hyl. Iatrica.* See **CADMIA.**

ACESTIS. Ἀκιστις. A facitious Sort of Chrysocolia, made of Cyprian Verdigrease, the Urine of Children, and Nitre. *Pliny.*

ACESTORIS. Ἀκιστορίς, from ἄκος a Cure. It signifies strictly a Female Physician, and is used for a Midwife.

ACESTRA. Ἀκιστρα. A Needle.

ACESTRIDES. Ἀκιστρίδες, from ἀκίσταμι, to cure. Midwives were so called amongst the Greeks. The Word is used by Hippocrates in this Sense, at the latter End of his Treatise de Carnibus.

ACE TABULUM. Καύλη, Κοτυληδών, ὀξέβαφον. The Herb **UMBELICUS VENERIS,** which see.

ACETABULUM signifies a large Cavity in a Bone, which receives another convex Bone, for the Convenience of a circular Motion of the Joint thus articulated. Thus the large Cavity found by the *Ossa innominata* is particularly called, which receives the Head of the Femur, or Thigh Bone.

It is formed by the Juncture of the Os Ilium, Ischium, and Pubis. In it the Edge called Supercilium, the cartilaginous Cavity, the Impression at the Bottom of the Cavity, and the Notch in the Edge, are observable.

The Edge, or Supercilium, is very prominent on the upper Part; on the Sides this Prominence decreases as they descend, and between the anterior and inferior Part it is quite lost. In the natural State it is increased by an additional elastic Circle.

The

The Cavity is proportionable to the Prominence of the Edge, and consequently deeper on the upper and back Part than on the lower and fore Part. It is covered with a very smooth Cartilage, except from the Middle to the Notch, which terminates precisely at the Edge of the Cavity.

This Portion of the Cavity which is without Cartilage, is what is called the unequal Impression, which is broader toward the Bottom of the Cavity than toward the Edge, and serves to contain a Ligament and a Bundle of Glands.

The Notch is precisely between the anterior and inferior Portion of the Edge of the Cavity, near the Foramen Ovale, which it, in a Manner, unites with the Cavity. The Situation of this Notch is oblique with respect to the Direction of the whole Body in an erect Posture.

The elastic Border of the cotyloide Cavity may be reckoned among the Ligaments. It is a Sort of additional Piece, strongly united to the Edge of that Cavity, but easily yields both Ways to any Pressure. It may be stretched out by pulling, and recovers and contracts again when that Force is removed. It is of a very singular Texture, being composed of elastic Fibres, interwoven together through its whole Circumference, and which, in several Places, are by Degrees inclined toward the bony Edge of the Cavity. It makes an intire Circle; and where it passes over the Notch, the transverse Ligament before-mentioned serves to support it, as the bony Edge of the Cavity does through all the rest of its Circumference. *Winslow's Anatomy.*

ACETABULUM also signifies a Sort of glandular Substance, many of which are found in the Placenta of some Animals. See COTYLEDON.

ACETABULUM was also a Measure used by the Antients, which answers to one eighth Part of our Pint.

It seems to have taken its Denomination from a Vessel in which Vinegar was brought to their Tables, which probably contained about this Quantity, and was called *Acetabulum* from *Acetum*, Vinegar. This Derivation is quoted by Chambers from *Agricola*; and it has the greater Appearance of being right, because *ἄξυβαλον*, *Oxybaphon*, which is exactly the same Measure, seems to be in like Manner derived from *ἄξος*, Vinegar.

Authors have taken some Pains to determine the Weight of the *Acetabulum* of different Liquids, in which they are not agreed. As the specific Gravity of Fluids are various, the Weight of the *Acetabulum*, as well as all other Measures, must be so too.

ACETARIA. Salads.

ACETARIUM SCORBUTICUM. A Kind of Medicine, or rather Pickle, recommended by Bates; in which he advises scorbutical Patients to dip their Victuals before they eat it. It is made thus:

Take of the picked Leaves of Sea Scurvy-grass three Ounces,
White Sugar six Ounces,
Salt of Scurvy-grass an Ounce;

Beat all together, and add six Ounces of the Juice of Oranges.

ACETOSA, [of *acetosus*, eager, sour, L.] Sorrel; so called of the Anglo-Saxon *ȝarp*, sour.

The Leaves of Sorrel are smooth, succulent, and tender; somewhat long, and sharp-pointed; ending near the Footstalk in two sharp Ears like Spinage; of a very sour Taste. The Stalk is long and slender, set with two or three smaller Leaves; and at the Top, a long reddish Spike of small staminate Flowers, which are succeeded by a small shining three-square Seed. The Root is about a Finger thick, branched, and full of Fibres of a yellowish brown Colour, abiding several Years. It grows every where in the Fields and Meadows, flowering in May. The Leaves, Seed, and Root are used. *Miller.*

1. ACETOSA *vulgaris*, *Oxalis*, Offic. *Acetosa vulgaris*, Park. 742. Raii Hist. i. 178. *Acetosa pratensis*, C. B. 114. Hist. Oxon. ii. 582. Tourn. Inst. 502. Boerh. Ind. A. ii. 85. Dill. Cat. 67. Buxb. 4. *Acetosa major vulgarissima*, Schw. 5. *Acetosa vulgaris*, *five Rumex campestris*, Munt. Herb. Brit. 221. *Oxalis seu Acetosa*, Ger. 319. Emac. 396. Park. Parad. 486. Chab. 311. *Oxalis vulgaris folio longo*, J. B. ii. 989. *Lapathum acetosum vulgare*, Raii Synop. iii. 56. COMMON SORREL.

It grows in Meadows and Pastures, and flowers in May. The Parts of it used in Physic are, 1. the Leaves, which are juicy, smooth, pointed, of a dark green Colour, and of an acid Taste; 2. the Root, which is fibrous, yellow, and has an astringent Taste; 3. the Seeds, which are of a triangular Figure, and of a bright red Colour. As to its Virtues; it is one of the principal Cardiacs and Hepatics, resists Putrefaction, creates an Appetite, repels Bile, and allays Thirst; whence it is most frequently given in common and peltential Fevers. *Dale.*

The Leaves are of great Use against the Scurvy, and to that End are recommended to be eaten in the Spring in Salads; and the Juice is frequently given among the other antiscorbutic Juices. The Root has no Sourness, but a bitter astringent Taste; and is accounted serviceable against the Scurvy, and bilious Fluxes. The Seed is also very astringent, and is therefore put into Diaecordium, and other binding Medicines. *Miller.*

This Plant is excellent in hot, lax, putrid Constitutions, abounding with Bile. *Barbary.*

The Root of this Plant is not sour, as Matthioli affirms: it is, on the contrary, very bitter, very astringent, and gives but a faint red Colour to the blue Paper; whereas the Leaves give it as deep a Red as Alum. The Red from the Leaves continues after the Paper is dry; that from the Roots vanishes, nothing remaining but a brown Spot. The essential Salt of the Sorrel is a Mixture of Sal Ammoniac and Nitre; it crackles in the Fire, and smells of an urinous Spirit when dissolved in Oil of Tartar. The Sal Ammoniac seems to be most disengaged in the Roots, because they stain the blue Paper with a red Colour, which the Nitre could not do; but in the Leaves their Acids are disengaged from a great Quantity of acrid Salt, and become, in some Measure, like the acid Spirit of Sal Ammoniac, or that of Nitre. In the Roots these two Sorts of Salts are united with a little foetid Oil, and a pretty deal of Earth. In the Leaves they are dissolved in a great Quantity of Phlegm. There does not appear any Vitriol in the Sorrel; for the Juice of its Leaves does not blacken the Tincture of Galls, any more than other Acids which have nothing metallic in them. So that it is no wonder the different Parts of the Sorrel have different Virtues. The Roots where the Sal Ammoniac, the Sulphur, and the Earth predominate, are good to remove Obstructions in the Bowels: They are prescribed in Broths, Decoctions, and opening Ptisans. The Leaves, on the contrary, which are so sharp that they set the Teeth on Edge, cool, by diminishing the Fermentation of the Blood, and temper the Bile, or keep it from inflaming. Simon Paulli relates, that in Greenland they give to those that are troubled with the Scurvy, Broths, or Decoctions of Cochlearia, with Sorrel Leaves; which correct its Acrimony. It has been observed also, that the Use of the Roots and Leaves of this Plant very much relieve scorbutic Persons, of a dry and bilious Constitution. The Leaves bruised, or roasted under the Coals, hasten the Suppuration of Tumours, as well as Leaven. The Roots stain Water with a red Colour; and may serve to cheat sick People who want to drink Wine, especially if you add a little Juice of Pomegranates. *Martin's Tournfort.* See, under the Article BOTANICA, an Account of the Method of examining the Contents of Vegetables, by the Alterations they produce in the Colour of blue Paper, &c.

2. ACETOSA *arvensis*, Offic. *Acetosa minor, seu Lujula*, Ind. Med. 111. *Acetosa arvensis lanceolata*, C. B. 114. Raii Hist. i. 180. Dill. Cat. 52. Hist. Oxon. ii. 584. Boerh. Ind. A. ii. 86. Tourn. Inst. 503. Buxb. 4. *Acetosa minor lanceolata*, Park. Theat. 744. Munt. Herb. Brit. 222. *Acetosa lanceolata major*, Schw. 8. *Oxalis parva auriculata repens*, J. B. ii. 992. Chab. 312. *Oxalis tenuifolia*, Ger. 320. Emac. 397. *Lapathum acetosum repens lanceolatum*, Raii Synop. 56. SHEEP'S SORREL.

This grows in Tillage Grounds; its Leaves are in Use; it is more grateful to the Palate than the common Sorrel, and is besides endued with all its Virtues. *Chab. Dale.*

This Sorrel is lower and smaller than the common, having many narrow sharp-pointed Leaves, each of which has two large Ears growing to the End next the Stalk, which makes the Leaf appear like the Head of a bearded Spear. They are sour, like the common. The Flowers grow in Spikes, as those of the former; are small and staminate; and the Seeds triangular, and less than the Seeds of that. The Root is small, and creeping in the Ground. It grows in dry barren Soils, and flowers in May. It is but rarely used, being supposed to have less Virtue than the common Sorrel. *Miller.*

3. ACETOSA *Romana rotundifolia*, Offic. Munt. Herb. Brit. 224. *Acetosa rotundifolia hortensis*, C. B. 111. Raii Hist. i. 180. Hist. Oxon. ii. 583. Boerh. Ind. A. ii. 86. Tourn. Inst. 503. Buxb. 4. *Acetosa Sabaudica*, Schw. 214. *Oxalis Franca seu Romana*, Ger. 320. Emac. 397. *Oxalis saliva Franca sive Romana rotundifolia*, Park. 743. *Oxalis folio rotundiore repens*, J. B. ii. 991. Chab. 311. FRENCH SORREL.

It grows in Gardens; the Leaves are used, and have the same Virtues as those of the other Sorts. *Dale.*

The Leaves of this Sorrel are of a glaucous or blewish green Colour; they are broader, shorter, and rounder than the common; and the Ears that stand on each Side, at their joining to the Footstalk, are very large. The Stalks do not arise to that Height; they are weaker, and stand not so erect; the Flower and Seed much like the other.

This Sorrel is found in Gardens, and flowers in June. The Leaves are as sour as the common, and may be used indifferently with it, both in Medicine and Salads. *Miller. Bot. Off.*

This Plant is of great Service in Physic. From the Juice decocted, well depurated, and inspissated, and afterwards laid up in a subterraneous Place, is made an acid Salt, which stimulates and purges, corroborates and astringes, and is proper for all Diseases attended with a burning, putrid, and continual Fever. A Decoction of the Leaves or Roots, in Whey of new Milk, is excellent against all lingering Diseases in general, where there is an Acrimony tending to Putrefaction. Its Conserve, Syrup, and Water are in Use. No Plant better purges the Body of feculent Humours collected in the Winter. A Handful of the Leaves boiled in a Pint of Whey, is an excellent Medicine in April. In short, it is one of the most effectual Remedies against the

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the Scurvy, if the Plant itself be eaten green, or its Juice drank; for it helps a stinking Breath, fastens loose Teeth, and cures the Putrefaction of the Gums; and is extremely beneficial in all Cases where the Blood is too fluid, and the Vessels lax. They who spit Blood, and are prone to a Consumption, find extraordinary Relief from taking the Juice hereof, which is of Use also externally applied; for it is proper to cleanse fordid Ulcers; and the Leaves, confused with Fresh-Butter, are of the greatest Service against such Carbuncles as tend to a Gangrene. *Boerh. Hist. Plant.*

To these three principal Kinds Miller adds the following:

ACETOSA *Folius crispis*, C. B. P. Sorrel with curled Leaves.

ACETOSA *montana maxima*, C. B. P. Greatest Mountain Sorrel.

ACETOSA *Pyrenaica*, *angustissimo & longissimo folio*, Schol. Bot. Pyrenean Sorrel, with very long narrow Leaves.

ACETOSA *montana*, *lato Ari rotundo folio*, Bocc. Mus. Mountain Sorrel, with a broad Arum Leaf.

ACETOSA *montana pumila*, *fagopyri folio*, Bocc. Mus. Dwarf Mountain Sorrel, with a Buckwheat Leaf.

ACETOSA *tuberosa radice*, C. B. P. Sorrel with a tuberose Root.

ACETOSA *Calthæ folio*, *peregrina*, C. B. P. Foreign Sorrel, with a Marigold Leaf.

ACETOSA *lucida*, *folio Atriplicis*, H. R. Par. Shining Sorrel, with Orach Leaves.

ACETOSA *major Italica*, *semine rotundiore & glomerato*, H. R. Par. Greater Italian Sorrel, with a round glomerated Seed.

ACETOSA *lanceolata angustifolia elatior*, Mor. Hist. Taller, narrow-leaved, spear-pointed Sorrel.

ACETOSA *Ocymifolia*, *Neapolitana*, C. B. P. Neapolitan Sorrel, with a Basil Leaf.

ACETOSA *Americana*, *foliis longissimis pediculis donatis*. American Sorrel, with Leaves growing on long Pedicles.

ACETOSA *rotundifolia repens Eboracensis*, *folio in medio deliquium patiente*, Mor. Hist. Creeping round-leaved Sorrel of the North.

ACETOSA *arborescens*, *subrotundo folio*, *ex insulis Fortunatis*, Pluk. Almag. Shrubby Sorrel, with a round Leaf, from the Fortunate Islands.

ACETOSA *Muscovitica sterilis*, M. H. The Northern barren Sorrel.

As Boerhaave attributes great Virtues to the native Salts of *Acetosa*, it will be proper to insert his Method of making them.

1. Take a large Quantity of broad-leaved Garden Sorrel, in the Prime of its Growth, a little before it flowers; let it be gathered early in the Morning, and well washed from its Sand in fair Water; cut it, bruise it, commit it to a clean Linen Bag, and squeeze out all the Juice in a strong Press. This Juice will be very acid, green, and thick as Must. 2. Dilute it with six times its Quantity of pure Rain-water, that it may the better pass the Strainer; now filter it through a conical Linen Bag, returning it so often till at length it becomes pure, thin, and limpid; at which Time it will be gratefully acid. 3. Put the Liquor, so purified, into wide Glass Vessels, and inspissate it by a very gentle Boiling, in a Place free from Dust, and over a clear Fire, till the remaining Matter become almost as thick as recent Cream, and strongly acid. 4. Pour this thick Liquor into a clean Urinal Glass, which it may fill till it reaches within its Neck; then gently pour on the Top a little pure Oil-Olive, to the Height of about the tenth of an Inch; and thus let it stand at rest for eight Months, upon the Floor of a Cellar. By this Means the Oil preventing Fermentation, Putrefaction, and Ropiness, a Salt will be produced resembling Tartar, which nearly approaches to the natural Salt of Vegetables. 5. The Liquor, therefore, being now poured off, let the Salt be a little washed by the quick and sudden Affusion of cold Water, to cleanse it of its adhering slimy Feculencies; then gently dry it, and it will be the native Salt of the Plant. *Boerh. Chem.*

ACETOSA *ESURINA*. Esurine Spirit of Vinegar, which will be described under the Article ACETUM.

ACETOSELLA. A Plant thus distinguished by Authors:

ACETOSELLA *Lujula*, *Allchaja*, Offic. *Acetosella & Lujula* *sive Allchaja Officinarum*, Buxb. 5. *Acetosella vulgo*, Herm. Hort. Lugd. Bat. 2. *Acetosella vulgaris & Officinarum*, Rupp. Flor. Jen. 101. *Trifolium acetosum vulgare*, C. B. Pin. 330. Hist. Oxon. ii. 183. Park. Theat. 746. Raii Hist. ii. 1098. *Trifolium acetosum vulgare Lujula*, *Allchaja Officinarum*, Meic. Bot. i. 74. Phyt. Brit. 123. *Oxys alba*, Mer. Pin. 90. Ger. 1030. Emac. 1201. Raii Synop. iii. 281. *Oxys flore albo*, Tourn. Inst. 88. Elem. Bot. 76. Boerh. Ind. A. 319. *Oxys sive Trifolium acidum*, *flore albo*, J. B. ii. 387. *Oxys sive Trifolium acidum*, Chab. 168. WOOD-SORREL. *Dale.*

Wood-sorrel has a small, long, and scaly Root, inclining to a red Colour, with a great many fine slender Fibres. The Leaves are numerous, springing directly from the Root, each on a slender reddish Stalk, about two or three Inches high, divided into three equal Parts, each in Shape of a Heart, of a

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pale green Colour, and a pleasant sour Taste. The Flowers spring up among the Leaves, upon their own Foot-stalks, consisting each of one single Leaf, divided into five Parts; in some Plants white, in others of a pale purple Colour. When the Flowers are fallen, the Seed Vessels grow large and five-corner'd, and when ripe will burst asunder at the least Touch, casting abroad their small round Seed. This Plant grows in Woods and shady Places, and flowers in April.

The Leaves of Wood-sorrel, which only are used, are believed to excel common Sorrel in all physical Virtues, and are reckoned more cordial and useful in inflammatory Fevers, quenching Thirst, and allaying the Heat of the Stomach, which they strengthen, and create an Appetite; they help Disorders of the Liver, and are good for the Dropsy and Jaundice. The Juice, when clarified, is of a fine red Colour, and makes a very agreeable Syrup.

Official Preparations from Wood-sorrel, are a Syrup of the Juice, and a Conserve of the Leaves. *Miller.*

The Juice of this Plant is somewhat oily, acid, and nitrous, therefore it is good in all burning, putrid, pestilential Distempers. The Herb boiled in Milk and Water is an excellent Remedy for an Inflammation, Pleurisy, and all acute Diseases. Nothing better corrects the Humours, Bile, and Putrefaction, than this Herb; therefore it must be good for a Nausea and Want of Digestion arising from putrefied Bile, or any acidescent Humour in the Stomach. Let the Patient eat this Herb like Lettuce, but without Vinegar, for it is sour enough of itself. It is a fine Remedy in a Diarrhoea, Dysentery, and Looseness; therefore it should be often used in Physic. Its distilled Water is of no Virtue. The Taste of this Plant is an unpleasant Sour, penetrating almost like the Juice of Citrons, and rather aperient than astringent. It is a very good Medicine in burning Fevers, Inflammations of the Jaws, Buboës, Carbuncles, and the Plague. Confused green, and applied, it is useful in the Distempers last mentioned. There is an excellent Conserve made of it with Sugar. A Volume has been written of the Virtues of this Herb in the German Tongue, and translated into Latin, wherein you will find that the Plague has been cured, and the Gums that were eaten with the Scurvy restored and healed by the Use of it. *Boerhaave.*

ACETUM, Vinegar.

This Fluid so commonly known has in all Ages been esteemed of great Importance both in Physic and Surgery.

Hippocrates recommends it in Hysterical Disorders; and in Inflammations of the Liver, and Diaphragm, mixed with Honey. See OXYMEL. But he says it is more serviceable in bilious, than atrabilarious Constitutions; for where Melancholy abounds it is prejudicial. And that it is more proper for Men than Women, because it is hurtful to the Uterus. *De Ratione Victus in Acutis.*

By Galen Vinegar is represented as most attenuating, discutient, repelling and antiphlogistic. He says in order to inform himself of the Effects of Vinegar, he applied the Thapsia to several Parts of the Legs, which in four or five Hours were much inflamed and painful. He then washed one Sore with Water, another he anointed with Oil, another with Rosaceum, and to another he applied Vinegar, and found nothing gave so effectual Relief as the last.

He says it penetrates all Bodies like Fire, and runs thro' the thickest and closest Cloths sooner than Water. That it dissolves scirrhus Tumours of the Spleen; and is an Antidote against the Poison of Mushrooms, and of the Thapsia, or Deadly Carrot.

It cures Hiccups that are caused by the Putrefaction of Aliment that remains undigested upon the Stomach. I suppose he means an alkaline Putrefaction; for then it cannot fail of being very serviceable.

In burning Fevers that happen during the Heat of Summer, attended with great Thirst, or in Fevers that happen in any other Season attended with Heat and Thirst, he recommends Vinegar mixed with Water, as an effectual Remedy; and directs it to be applied to Achors that are mild, and require only topical Applications, and to a superficial Herpes, which he asserts it will cure.

Vinegar with Bitters he directs for inflammatory Tumours tending towards a Scirrhus, especially of the Spleen, because it attenuates without heating. And a Scirrhus in general, he says, may be cured by the Fumes of Vinegar received from a red-hot Pyrites.

This Author also advises to apply Vinegar to the Nostils of lethargic Patients, wherein Thyme, Pennyroyal, and Origanum have been boiled. This reviving, or exciting Virtue of Vinegar will be taken notice of hereafter from Boerhaave; mean time I must from my own Experience recommend it as the most powerful Exciter known in Faintings, Hysterics, and all those sudden Disorders which are usually called Fits, where it is of much greater Efficacy than any fetid Fumes, or volatile Salts, which frequently are of little Service, and often do a great deal of Hurt.

The Virtues of VINEGAR according to Dioscorides.

Vinegar refrigerates and astringes, is good for the Stomach, and

and creates an Appetite. Stops all manner of Fluxes of Blood, either taken inwardly, or externally applied. And boiled with the Food stops a Looseness. It is proper for Wounds, and prevents Inflammation if applied in greasy Wool (*ὀιστανήτοις*) or a Sponge. It cures a Prolapsus of the Anus and Uterus, and the Putrefaction and Bleeding of the Gums; it is serviceable for eating Ulcers, Erysipelas, Herpes, Leprosy, Tettors, and Films in the Eye, if joined with other proper Ingredients. It restrains the Spreading of phagedenic and cancerous Ulcers, if they are constantly fomented with it. A warm Fomentation of Vinegar with Sulphur relieves the Gout; and Vinegar applied with Honey effaces the Lividness from Blows and Bruises. With Oil of Roses (*ῥοδιῶν*) applied in greasy Wool, or a Sponge, it cures the hot Distempers of the Head. The hot Steam thereof is effectual against the Dropsy, Thickness of Hearing, and Noise in the Ears; and Vinegar dropped into them kills Worms bred therein. A Fomentation of warm Vinegar, or a Sponge dipped therein, cures Swellings of the Glands and Itchings. The hot Fomentation is effectual against the cold Poison of venomous Creatures, as on the contrary, the cold Fomentation is a Remedy for their hot Poison. A Vomit of hot Vinegar is effectual against all Sorts of Poison, especially the Papaver Spumeum, and Hemlock; and, taken with Salt, against Concretions of Blood, or Milk in the Stomach, Mushrooms, the white Chamæleon, and the Yew. A Draught thereof expells Leeches out of the Stomach, mitigates an old Cough, and irritates a new one. It is good supped hot for an Asthma. In Gargarisms, it stops Defluxions on the Throat, is useful in the Quinsey, and Relaxation of the Uvula, and held in the Mouth hot relieves the Toothach.

As the illustrious Boerhaave has been indefatigable in his Enquiries concerning the Production of Vinegar, curious in his Researches into the Nature of it, and accurate in his Account of its Virtues, I cannot do a more agreeable thing to my Readers than make them acquainted with his Sentiments on this Subject, upon which I shall take the Liberty to make some Remarks. Mean time I would advise them to read the Articles FERMENTATION and ACIDUM, in order to the better understanding what follows.

After understanding the Effect of the first Fermentation of vegetable Juices, that is, Alcohol, or an inflammable Spirit, it remains that we consider the other Production of it, Vinegar, which cannot any ways be procured without previous Fermentation, and that a double one; for the Generation of a vinous Liquor must precede that of Vinegar, and then any Wine or vinous Liquor is fit for this Purpose. For if you mix with any Sort of Wine a large Quantity of its own Lees, and the Flowers that rise to the Top, during its Fermentation, adding also powder'd Tartar, and the Twigs, Stalks, and Skins of the Grape, and the acid, austere Vine-leaves, which abound with a saline, tartarous Matter, and then stir these well together, and set them in a warm place, particularly in wooden Casks that are thoroughly penetrated with the Vapour of Vinegar, and in an Air that is also impregnated with the Fumes of Vinegar, they will by this means undergo a second Fermentation, with a considerable Production of Heat, and, in this particular, the second acetose Fermentation differs from the first. If this is protracted too long, the Wine, indeed, grows sourish, but then it grows flat, and never becomes good Vinegar.

The remote Matter, therefore, of an acetose Fermentation is every Vegetable, which is capable of a vinous Fermentation, provided it is first, by this, converted into Wine. The Matter from which Vinegar is immediately prepared, is every Sort of Wine, with this Circumstance however, that the stronger the Wines are, the sharper generally are the Vinegars which are made from them, whilst the smaller Wines produce indeed Vinegar, but of a weak and more unactive Nature.

The Ferments by which an acetose Fermentation is most successfully promoted, are particularly these.

1. The acid Faeces, or Lees of an acidish Wine, called the Mother of Wine.
2. Faeces of Vinegar collected in old Casks, especially such as are well saturated with very strong Vinegar.
3. Tartar of an acid Wine, reduced to Powder.
4. Vinegar itself, first well prepared, and brought to its greatest Degree of Acidity.
5. Old wooden Casks, which have been for a long time full of the strongest Vinegar, and hence are thoroughly penetrated with its sharp Acid.
6. The frequent stirring up of the Lees in its own Wine.
7. The Stalks, Twigs, and Skins of Cherries, Currants, and Grapes, the Tendrels of Vines, and the like Parts of other acid austere Vegetables.
8. The acid Rye-leaven of the Bakers.
9. A Composition of all the preceding mixed together, especially if there are some very warm Aromatics added to the Acids; for then the strongest Vinegars are produced.

Glauber long ago gave the whole History of the Generation of Vinegar, with great Accuracy, and an Account of this was afterwards published in the *Philosophical Transactions*, the Purport of which is as follows.

Two large oaken Vessels are prepared in the Shape of common

Casks; in each of these, at about the Distance of a Foot from the Bottom as they stand upright, a wicker Grate is fixed. Upon these Grates are laid a moderately thick Stratum, of fresh, green Tendrels of Vines, and over these, such a Quantity of the Pedicles of Grapes from which the Grapes have been stripped, as is sufficient to fill the Vessel to within a Foot of the Top. When these two Vessels are thus prepared, the Wine of which the Vinegar is to be made is poured into both of them, but in such a Manner, that one of them is filled quite full, the other only half full; and then every Day alternately, the Vessel which was half full, is filled out of the other, so that neither remains full above twenty four Hours. After proceeding in this Manner for two or three Days, a Fermentation arises in the Wine with a sensible Heat, in the half filled Vessel, and this increases gradually every Day. Mean time the Motion and Heat are almost suffocated in the Cask which is quite full, so as nearly to cease in the Space of the twenty four Hours, during which it remains full. Thus Fermentation and Heat are alternately excited and suffocated in the two oaken Vessels.

In this Manner the Operation is continued, till the Heat is extinguished, and there appears no more Motion in the half filled Vessel; and this is a Sign that the acetose Fermentation is completed, the Vinegar therefore must be then put up in Casks well stopped.

The hotter the Room is where these Vessels, in which the Vinegar is prepared, are placed, the sooner will it be made; in France it is completed in Summer in about fifteen Days: But in cold Weather, and a cold Place, the Operation is more slow. But when either the Season or the Workhouse is very hot, it is often necessary to fill the half filled Vessel out of that which is full, every twelve Hours; for otherwise there arises such a Heat and Fermentation in the Vessel half full that the volatile Spirits of the Wine, not being yet sufficiently fixed, are dissipated by the Heat, and fly off before they can be properly intangled and converted into the acid Spirit of Vinegar; And hence the Liquor, though it would be four would at the same time be vapid, and in no respect strong generous Vinegar. For this reason also, the Vessel which is half full, is always accurately closed with a Cover of Oak, that the foaming Ebullition of the fermenting Liquor may be restrained, and checked, and thus the repelled Spirits may act longer and more forceably upon the austere Substances underneath, and by the Reaction of them be better secured from Dissipation. But the full Vessel is not covered, but left quite open, that the Air may have a free Access to the Liquor designed to be changed..

This is the second Fermentation, which tends to the Production of Vinegar, and there terminates. Vinegar is erroneously by some esteemed a Liquor produced after the Evaporation of the inflammable Spirits generated by the first Fermentation; for this would be vapid, and nothing like Vinegar. On the contrary, the more generous, and the more replete with Spirits the Wine is which is used for this Purpose, the better will the Vinegar be, and the weaker the Wine is, the less acid is the Vinegar prepared from it. For this reason, the strongest Malt-Liquors, if they are treated in the same Manner, yield an exceeding good Vinegar, as do the richest Spanish Wines. In this Operation, it is particularly remarkable, that this Conversion of Wine into Vinegar is not brought about without the Generation of a considerable Heat during the Fermentation; whereas Must fermenting in the time of Vintage scarcely generates any Heat; and Malt-Liquor, notwithstanding the violent Motion which is excited whilst it works, does not grow warm. Is Heat therefore always required for the Generation of an Acid? It is certain that Corn and Milk and Food prepared from these do not grow acid without Heat either of the Season, of artificial Fire, or that of the Body. And we find, that a violent Fire converts Nitre, Sulphur, and Salt, which are not acid, into Spirits extremely acid. Hence perhaps, upon Reflection, we shall find reason to believe, that almost every Change which is brought about in Nature, requires a certain Degree of Heat.

In this Operation, another Circumstance occurs which deserves our Consideration, which is, that whilst Wine is thus converted into Vinegar, this clear thin Liquor deposits an incredible Quantity of thick, pinguious, oily, and as it were soapy Faeces, which hang about the Sides of the Vessels, the Vine Tendrels, and the Pedicles of the Grapes. Whence should this arise? In the Wine there is not the least Sign of any such thing, and in the austere Tendrels, and Pedicles, one would expect to find nothing like a pinguious oily Substance. And yet it is in this Manner formed from the Wine; for if it is washed off it will be generated again, inasmuch that it is necessary once a Year to clear away all this gross unctuous Matter, for otherwise, when the Wine was put into the Vessels, it would not be changed to a thin sharp Vinegar, but to a thick, corrupted, pinguious Liquor fit for no Use whatever.

But Care must be taken to clear the Pedicles, and Twigs, from this pinguious Matter which adheres to them, by a sudden Affusion of Water upon them, which must be suffered to run thro' them, lest if it should remain, it should deprive them of their acid Ferment, with which they are now impregnated.

After this the Grates, Sides, and Bottoms of the Vessels, in which the Vinegar is made, are cleared with the same Caution, and as soon as ever the pinguious Impurities are removed, the Grates, Twigs, and Stalks are disposed as before, and are then again fit for making Vinegar; till, by a long Use, the same oily Crust will be formed again; which evidently demonstrates, that the Wine actually throws out an Oil whilst it is changed from its own proper Nature to that of Vinegar. At the same time too, the acetific Ferment remains in the Vessels, Grates, and Stalks; and hence, when these Vessels have been used a considerable time, they acquire very strongly the Power of converting Wine into Vinegar, and with the Grates, and Stalks &c. become as it were spongy Reservoirs of Vinegar.

It is farther to be remembered that as Alcohol, prepared from very strong old Malt Liquor, can scarcely be distinguished from that drawn from the richest Wine, so here the same Malt Liquor, treated in the Manner explained, may be converted into Vinegar, as good, pure, and fit for any Use, as can be made from the best Wine; nor is it easy to find any Difference betwixt them, except what is owing to the Bitters put into Malt Liquor, to make it keep, which give it a Colour and Taste different from what it would have had, if prepared from Corn alone. In other respects they are intirely the same.

The Effect therefore of this second Fermentation, when completed, is the Production of good Vinegar. In order now to understand this the better, let us consider what Vinegar is. Vinegar is an acid, penetrating, subpinguious, volatile, vegetable Liquor, produced from Wine by a second Fermentation; the first Part of this which rises in Distillation is truly acid, and by no means inflammable, but extinguishes Fire and Flame, like Water; and by these remarkable Properties, Wine is distinguished from Vinegar.

Wine, then, by one Fermentation is prepared directly from vegetable Juices; Vinegar, by a second Fermentation, from Wine that is already made. The volatile Part that first rises from Wine in Distillation will take fire, and rise into a lucid Flame, but the most volatile Part of Vinegar, which rises first like Water, puts it out. This, therefore, is an Instance of a very extraordinary Production of one thing from another of a different Nature. Some of the most able Chymists have called Vinegar a volatile Tartar of Wine, because Tartar is the most acid part of Wine, but not volatile; Vinegar, Wine converted into a volatile Acid; and they were farther confirmed in this Opinion, because Wine generally deposits a Tartar, and Vinegar, if it rest never so long, produces not the least portion of it, though as it is deprived of a great deal of Oil in making, and hence is rendered more acid, it should seem reasonable to expect it would generate a greater Quantity. It must be confessed that what remains at the Bottom of the Retort, after the Distillation of Vinegar, seems to approach near to the Nature of Tartar, but yet, upon Examination, we find it a Substance very different from it. But it will be of singular Service to Chymistry, Medicine, and Natural Philosophy, to explain the specific Nature of Vinegar, which I shall endeavour to do as follows.

Vinegar is a Liquor, distinguished by its proper Characteristics above specified, to which I shall only now add, that it is a volatile, oily, acid Salt; for its Oil, which lies surprisngly concealed under a sharp, thin Acid, most evidently discovers itself by a great many Experiments.

This Compound is extremely useful, because it powerfully resists that dangerous Putrefaction to which animal Juices are very subject, and at the same time it is rendered less acrid by reason of the oily Particles joined with it. This Liquor also is so penetrating that it easily passes through very dense Substances, (as was observed by Galen) in its full Strength, and without any Separation of its Parts, and will insinuate itself into all Parts of the Body, very few Vessels excepted, and thus being distributed thro' the greatest Part of the vascular System, will there exert its proper Powers, especially as it is then assisted by the natural Heat, and vital Motion. It also very readily suffers itself to be mixed with every animal Fluid we are acquainted with, the Oil itself not excepted, and thus by its Penetrability and Miscibility is productive of very great Effects in the Body.

It effectually refrigerates in Fevers caused by the Stimulation of the Bile grown too acid, of an alcalescent Salt, or of a Putrefaction prevailing in the Juices of the human Body, or by venomous Bites, and at the same time allays the Thirst which accompanies these Disorders. And hence in these Cases, we have nothing extolled more by Dioscorides and Hippocrates, than Oxycrate, or Vinegar and Water, especially when rendered milder by an Addition of Honey. The Surgeons are acquainted with nothing of greater Importance in many external Maladies, as an Erysipelas, Phlegmon, or putrid Ulcer. In virulent Bites, there is not any thing more efficacious than Oxycrate. It is so far from intoxicating, that whereas fermented Spirit of Wine is the only thing that inebriates, Spirit of Vinegar on the contrary proves a Remedy for Drunkenness when it is excited; even though a Man is quite sunk in Sleep from the Abuse of Spirituous Liquors, he may be roused by giving him Vinegar. Hence, in exciting the Nerves, and adding Motion to the Spirits, scarcely

any thing is of greater Service. In weak, languid, drowsy, and lethargic Patients, and those much subject to Faintings and Vomittings, after having tried the most celebrated chymical Productions in vain, I have frequently at last given Relief by applying Vinegar to the Nose and Mouth, or giving it internally. And farther, which perhaps only those who have tried it would readily believe, in convulsive, hypochondriacal, and hysterical Cases I have often known it do good (and for these purposes it is strongly recommended by Hippocrates in many Places). Justly, therefore, did Hippocrates and Galen recommend it to Hypochondriacs. In a true Putrefaction and deadly Corruption of the Humours, and for stopping the Progress of a Gangrene, nothing is equal to it; and this I affirm from Experience. But the following Observation renders all farther Arguments upon this Subject superfluous. During the most extreme autumnal Heats, when animal Substances are strongly inclined to run into a putrid Sanies, Flesh and Blood are preserved from Corruption by sprinkling them plentifully with Vinegar. But, with all due Deference to the Opinions of those who think otherwise, I attribute an attenuating Virtue to Vinegar. For if it is mixed warm with the Blood, or its Serum, it is so far from coagulating them, and from generating polipous Concretions by its Admixture, that it attenuates them, and agreeably resolves Coagulations already formed. In acute Fevers, therefore, in malignant burning Fevers, in the Plague, the small Pox, Measles, and the like Distempers, Vinegar is an excellent Medicine, whilst volatile alkaline Salts are used with much Prejudice and Danger to the Patient, because by their stimulating Acrimony they increase the Velocity, and of Consequence the Density of the Blood. Consistent with this was the Practice of the illustrious Franciscus de le Boe Sylvius, who, if not the Inventor, was at least a great Favourer of the Sal Volatile Oleosum; for by the Help of what Prophylactic did he visit his Patients in the Plague with Safety? It was by only drinking first an Ounce or two of Vinegar: And he informs us, that having once omitted it, he for this Neglect was punished with a severe Pain in his Head. In short we are not acquainted with a more certain and effectual Sudorific; for Vinegar, either diluted with Water, or alone, will procure a plentiful Sweat, in the Plague, and other malignant Diseases, where other things seldom answer.

Vinegar seems to be generated by the Combination of the inflammable Spirit, produced by the first Fermentation, with an Acid somewhat more fixed, which lay concealed in the Wine; for these inflammable Spirits are not lost. Perhaps therefore these Spirits, by the second Fermentation, may be united with the essential Salt of the Wine, that is, the Tartar. This I leave to mature Examination, only adding, that it seems as if the Spirit of the Wine was altered in its Nature, and had put on that of Vinegar. And if this is true, this is the only Way commonly known of truly changing the Matter of Alcohol into something of a quite different Nature.

Perhaps the finest essential Salt of Wine is the Tartar which is generated from it; and which is utterly consumed in the making of Vinegar, though in the Process there is nothing separated from it, but a thick Oil; for if the purest and most defecated Rhenish Wine is, whilst new, put into a clean Cask, it will produce a great Quantity of the best Tartar, when at the same time if the very same Wine is by the above described Process converted into Vinegar, and stands ever so long, it will never generate the least Portion of Tartar, and yet, as I before observed, there is nothing deposited or formed, during the second Fermentation, that in any respect resembles Tartar, but only a pinguious, tenacious Matter, that is widely different from it.

In the Distillation of Wine, the Spirit produced by the first Fermentation comes over before the Water; but in Vinegar prepared by the second Fermentation, the watery Part rises first, and when this is drawn off, an acid Spirit succeeds, which is always the stronger and more acid, the lower it is drawn. Whence we perceive, that the first Fermentation renders its Productions volatile; but the second makes what it generates more fixed. The Action therefore of Fermentation appears very surprisng, which from Must, that is sweet, produces a Wine, which inclines to an Acidity; and from a Fluid void of Alcohol before, generates it; and again, from a sweet Liquor forms an Acid; and makes the Matter of Alcohol afford something in every respect widely different from it.

The Promoters of this second Fermentation are,

1. A sufficient Degree of Heat.
2. The free Access and even Admixture of the Air.
3. Motion, Conquassation, and frequent stirring of the Liquor in the open Air.
4. The Addition of some very warm Aromatic during the Fermentation. The Impediments to this Fermentation are every thing which retards the first Fermentation, except that stirring the Liquor about is here of service, whereas in the other it does harm. See FERMENTATION.

We see here that Boerhaave attributes an attenuating Virtue to Vinegar, contrary to the Assertions of many great Men, who have set it in a very different Light. I am sensible, that the Effects of Vinegar upon Blood out of the Limits of Circulation will not determine

determine those it has upon the same Fluid, whilst circulating in the Vessels. However the Question whether Vinegar mixed with the Blood fresh drawn from a Vein, preserves, or destroys the Fluidity of it, seems of Importance enough to deserve Examination, especially as Men of considerable Figure in the Profession of Physic have maintained Assertions in regard to this directly opposite to each other.

In order to satisfy my self of the Truth, July 29. 1741, I got a Surgeon to take some Blood from the Arm of a Boy about fifteen Years old, who was in a Fever. He took it in four different Tea-cups, each of which held an Ounce and a half. Into the first I put three Tea-spoonfulls of the best White-Wine Vinegar I could get, as soon as ever the Cup was near full, and stirred it round two or three

In the second I put none, but stirred it as near as I could in the same Manner I did the first, that I might observe the moving it had an equal Effect on the Fluidity of the Blood contained in both the Cups.

In the third Cup I put four Tea-spoonfulls of the same Vinegar, and stirred it in the same Manner.

In the fourth Cup I put none, and stirred it in the same Manner.

In half an Hour, the Blood in the second and fourth Cup was coagulated; the Blood in the first Cup was coagulated but very little, and that in the third not at all.

About four Hours after, the Serum was perfectly separated from the Crassamentum in the second and fourth.

The first was not much coagulated. The third scarce at all.

The next Morning the Blood in the second and fourth was the same as the Night before.

That in the first coagulated, but not strongly, and without any Separation.

That in the third was somewhat thick, but still preserved its Fluidity. I believe those who have represented Vinegar as a Coagulator of Blood, have been led into this Error by the Effect which the stronger Mineral Acids have upon Blood; for those make it coagulate very soon, and strongly, as 'tis probable Vinegar would do, had it the same Quantity of Acid in it; but strong Vinegar contains only about fourteen Grains of true Acid in an Ounce, whereas there is three Drams and six Grains, that is, 185 Grains of Acid, in five Drams of Oil of Vitriol. Now the same thing in different Degrees has frequently very different Effects on the same Body.

However, so far as may be judged by Effects, Vinegar may be said to be a great Attenuator of the Blood, whilst in the Course of Circulation; and at the same time, which is very extraordinary, preserves the Texture of the Blood, and keeps it from that Dissolution, which it is inclinable to in the Plague, and pestilential Fevers. This will appear less wonderful, if we consider that Vinegar as an Acid prevents Putrefaction, as was observed above; and that when the extremely elastic Particles of the Acid are mixed with the circulating Fluid in a just Proportion, the Heat of the Body rarefies and expands them with a Force sufficient to break thro' and destroy the Coagulations or Concretions of the Blood, which are the very Essence of Inflammations.

I say in a just Proportion, because the Blood may be overcharged with the acid Particles. 'Tis for this Reason probably that Hippocrates advises Vinegar in Fevers, diluted with Water and mixed with Honey; for, as Galen expresses it, Vinegar adds Wings to Water, and enables it to penetrate into the most extreme Parts of the Body.

Cælius Aurelianus advises to blow Vinegar into the Nose in an Epileptic Fit.

Upon reflecting on the Appearances in both the Fermentations necessary to the Generation of Vinegar, I think there is Reason to believe that the Acid of Vinegar is a new Production, but that it rather lay concealed and enveloped in the Oil of the vegetable Juice, till disengaged from it by two Fermentations, which are nothing more than continued Efforts of the extremely elastic Acid, assisted by a proper Degree of Heat, to disunite itself from the vegetable Oil, which disguises it, and detains it, thereby preventing it from flying off, and mixing with the Air, of which perhaps it was originally a Denizen, and from whence it may be entertaining to trace it, till it disentangles itself from the vegetable Juices, and exhaling, leaves the remaining Fluid tasteless, and vapour, being only Water with a small Portion of mucilaginous and inactive Oil.

It is said under the Article *Acidum*, that there is an Acid perpetually floating in the Air. This Acid is so strongly attracted by alkaline Salts of all kinds, that in time they become so saturated therewith, as to be entirely neutral. Now alkaline Salts are the great Promoters of Fertility, inasmuch that, unless the Earth is sufficiently saturated with them, no Vegetable of any kind will grow in it, because these Salts are absolutely necessary to the Formation of a saponaceous, neutral Menstruum, capable of dissolving Earth; for otherwise Earth, which is incapable of Solution by Water alone, could not enter the Pores of the Roots, and contribute to the Formation of the solid Parts of Plants.

If we examine all the Substances in Nature, that are used to promote Fertility, we shall find they contain an alkaline Salt. Thus all the Parts or Excrements of Animals contain an alkaline Salt; and the same kind of Salt is found in all Vegetables that have undergone Putrefaction. Thus Lime also contains an extremely volatile and penetrating alkaline Salt, of singular Efficacy in fertilizing barren Lands. Amongst Limes may be reckoned a Kind of *Sal Terræ*, to be discovered by its Effects in all Countries: For Earth, by the continual Action of the Sun upon it during Summer, is in some Measure calcined, and furnished with a Salt of the Nature of Lime. Hence the Advantages of a Summer Fallow, as the Farmers call it, which is only exposing the naked Earth to the Influence of the Sun. Hence also the great Fertility of Meadows from Inundations; for the Waters having in their Passage taken up and dissolved large Quantities of this *Sal Terræ*, deposites them upon the Lands they overflow.

But this is no where so remarkable as in *Ægypt*, whose prodigious Fertility seems to depend intirely upon this kind of alkaline Salt; for the Water of the Nile being gathered in the parched Mountains of *Æthiopia*, collects in its Passage this Salt, which it afterwards deposites on the Soil of *Ægypt*.

This Kind of Salt is perhaps that which the Inhabitants in all Ages have collected in great Quantities, under the Name of *Natron*, which is not unlike the *Cineres Clavellati*, and may be used for the same Purposes.

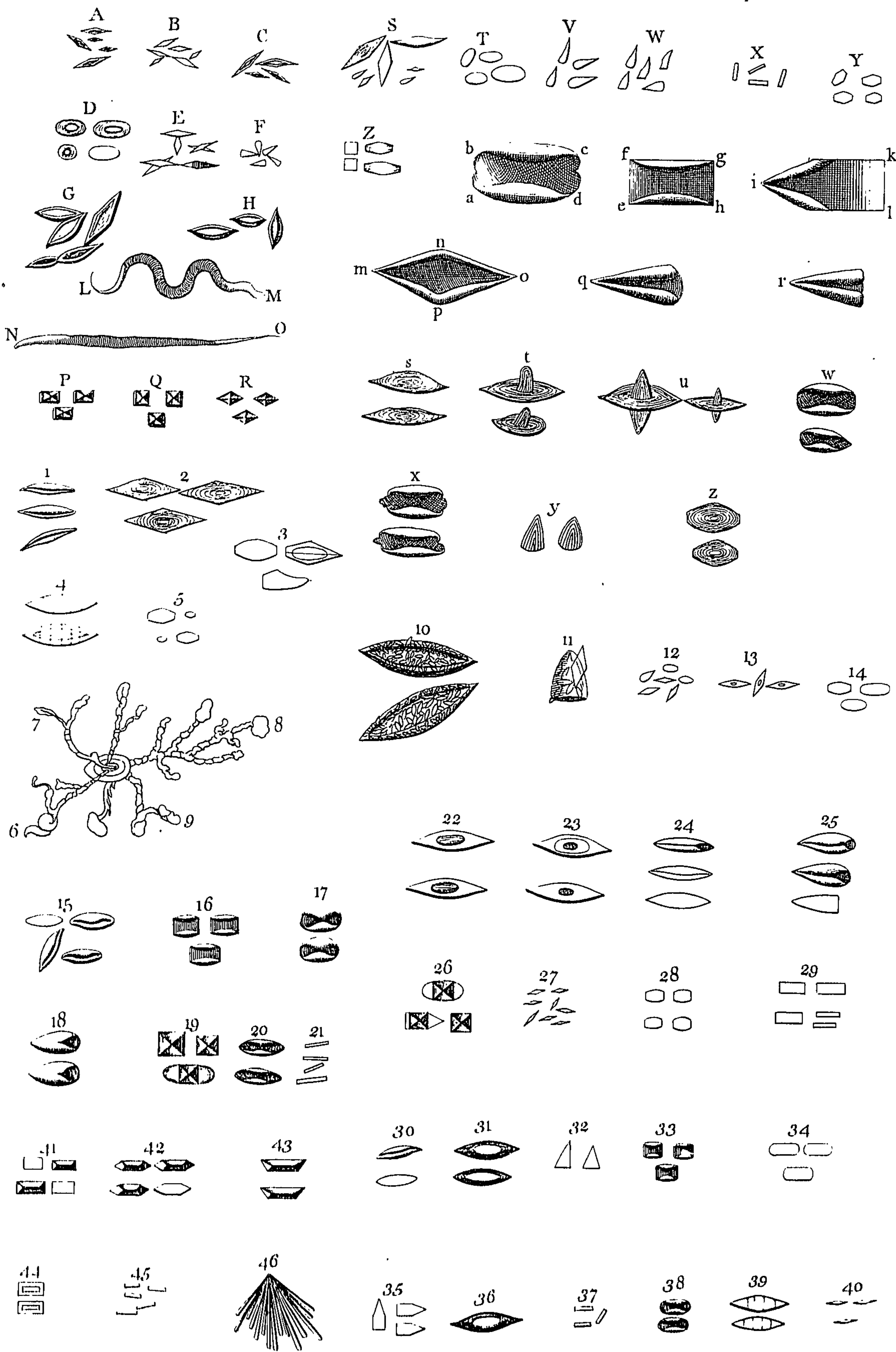
When these alkaline Salts are committed to the Earth, and consequently exposed to the Air, they attract the Acid floating therein, till they are saturated therewith, and become neutral. At the same Time they attract the Moisture, and with it the volatile Oils of Animals and Vegetables floating in the Air. These then, mixed with the Oil of the Earth, being digested by the Heat of the Sun, form a penetrating, neutral Soap; which, when diluted by the Rains, becomes a *Menstruum* capable of dissolving Earth, or reducing it to Particles fine enough to enter the Pores of the Roots of Plants.

I call this Soap, because it has all the Ingredients of Soap in its Composition, and answers the same End, that is, it dissolves Concretions of Earth, or, in other Words, Dirt. And I believe every Body has observed the Earth to foam and lather upon a hasty Shower of Rain. The Ingredients of Soap are an alkaline Salt, and Oil. Now, all Oils contain an Acid, and this Acid neutralizes the alkaline Salt, as it mixes with it, in the Formation of Soap. It is, perhaps, on account of this Acid, that Oils flame; for Acids, tho' not readily inflammable, yet flame with the utmost Violence, and greatest Degree of Explosion, when once set on fire. And I do not recollect any Body in Nature that will flame, that has not an Acid in it. Turpentine, which are vegetable Oils, and contain a great Quantity of Acid, are remarkable for the Violence of the Flame they emit.

From this *Sapo Terræ*, or Soap of the Earth, is made that neutral Salt which we call *Nitre*, perhaps the greatest Dissolvent in Nature, and for that Reason a Medicine of the greatest Importance in the Practice of Physic. It must be observed here, for the better understanding and Confirmation of what I am going to say, that the Acid of the Air which enters the Composition of common *Nitre*, is not lost or destroyed, but only disguised and concealed under the Mask of the alkaline Salt and Oil with which it is united, and from which it may again be separated, as it actually is in making Spirit of *Nitre*.

This saponaceous *Menstruum* then, together with the dissolved Earth, is conveyed into the Pores of the Roots of Plants, where a Part of the Earth and Salt is employed in the Formation of the Solids, and a Part of the Oil serves as a Cement for joining the Particles of Earth together, which otherwise would not cohere, but fall from each other like the Ashes of Vegetables, which are nothing but Earth and Salts deprived of their cementing Oil by Fire. Mean time the Juices, deprived of Part of their Earth, Salt and Oil, are somewhat acid; that is, the Acid in some Degree disengaged from the enveloping Oil, neutralizing Salts, and austere Earth, has Liberty to act and affect the Organs of Taste. But as the Plant approaches to Maturity, less of the Oil and Earth received by the Root is employed in Accretion: They mix therefore with the Juices, and contribute by Degrees to their Neutralization, which is farther promoted by the Heat of the Sun, which digests them together, and mixes with them itself; for Heat is a Body, as has been proved by many Experiments; and according to its different Degrees, has the Power of neutralizing Acids, or expelling them from the Substances to which they adhered; but I do not know that it has been proved, by any Experiment, that it can utterly destroy them.

It must also be remembered that Vegetables imbibe the Air, and no doubt the Acid thereof. And indeed this kind of Respiration is not less necessary to Vegetables than Animals; for without an open Intercourse with the Air no Plant can live, but very soon withers away and dies. If we farther consider, that this Sort of Respiration is performed by Means of the Leaves, and that in most Plants the Leaves by Degrees decay and



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and wither as the Fruit approaches to Maturity ; we may, perhaps, find Reason to believe, that the Juices of Vegetables receive an additional Acid by Respiration, which ceases by Degrees, when the Acid is no longer of Use, and when the Neutralization of the Juices are necessary to the Maturation of the Fruits.

And this will be farther confirmed by most of those Vegetables that produce a Fruit very acid when full ripe, as the Lemon, Orange, Citron, and others of the same kind ; which do not lose their Leaves as the Fruit ripens.

Upon the different Combinations of the Acid, alkaline Salts, Oils, Water and Fire, depend the different Tastes of Vegetables. Hence also some Plants are salutary and medicinal, whilst others are deleterious and fatal, to Animals that eat them. How far the Acid may be concerned in rendering them poisonous, I cannot determine ; but it is well known that Acids, when raked, are the greatest Poisons known in Nature, tho', when properly combined with Things of a different Nature, they are not only salutary, but endued with excellent medicinal Virtues.

The Example of the Vine may serve for an Illustration of what I have advanced, whose Juices in the Spring are much inclinable to Acidity, whilst the solid Parts, that is, the Tendrils and Branches, increase surprisingly fast. The Juices of the Fruit, that is, the Grape, are also very acid till arrived at their full Growth, and neutralized by the Accession of oily and alkaline Particles, and the Admixture of Heat or Fire ; a great deal of which last is necessary to bring them to Maturity.

When these Juices are neutralized, that is, full ripe, they are sweet, or, in other Words, the Acid is enveloped in Oil and a Portion of Earth and Salts, and mixed with Particles of Fire ; for an Acid thus modified seems necessary to the Formation of a sweet Taste, as is evident in Sugar and Honey.

Thus Must and Wort are sweet ; which put in a proper Vessel, and set in a sufficient Degree of Heat, begin to ferment ; that is, the Acid, which is extremely elastic, begins to expand, and to disengage itself from the enveloping Oil. Mean time, a Part of the Acid flies off with so prodigious a Force, that no Vessel is strong enough to confine it. This is what Helmont called the Gas Sylvestris, or Savage Spirit, which is the most sudden and deleterious Poison known in Nature ; and to a Portion of this remaining in the fermented Liquors the intoxicating Faculty of such Liquors is indisputably owing.

This Gas Sylvestris I call acid, because it has an acid Smell, and because its expansive Force is greater than that of any known Body in Nature, except the Acid of Nitre, to which it seems nearly related.

Mean time, the more gross Particles of the Oil are separated, and rise to the Top of the fermenting Liquor in a Froth, where they condense by Degrees, and become at last heavier than the Liquor, when they sink to the Bottom, and remain there under the Name of the Lees, or Mother of Wine ; but in Malt-Liquors it is called Yeast, or Barm.

When this first Fermentation is completed, the Liquor changes its sweet Taste for one somewhat inclinable to Acidity ; and the finer and lighter Parts of the Liquor, separated from the heavier by Distillation, will take fire, and flame, which therefore must be an Oil attenuated by Fermentation, containing an Acid.

During the second Fermentation, more gross Particles, which entered the Composition of the Oil, and enveloped the Acid, are separated from the Fluid, and deposited on the Sides and Bottom of the containing Vessel ; and then the naked Acid is at Liberty to act, and affect the Organs of Taste with that Sensation which we call sour. But if the second Fermentation is carried on a little too far, the Acid making its Escape, mixes with the Air from whence it came, and leaves the remaining Liquor a tasteless vapid Mass.

What Galen observes in regard to Vinegar, makes very much for what I have advanced. This Author tells us, that Vinegar in its penetrating Quality resembles the Northern Air. Now Hoffman informs us, that those who are concerned in the making Nitre observe, that the Northern and Easterly Winds favour the Production of Nitre, that is, bring the Acid, which fixes on the Earth, impregnated with alkaline Salts, and renders it nitrous.

'Tis probably a Portion of this Acid, which uniting with the grosser Particles of the Oil, fixes to the Sides and Bottom of Casks, and forms Tartar. Hence that incoercible Spirit or Gas which rises from Tartar in Distillation, and which either perspires through the Lute, or bursts the Vessels. See TARTARUS.

If it should be mentioned, as an Objection to what I have said, that the Spirit of Wine is lighter than Water, and rises first in Distillation ; but that the Acid of Vinegar is more fixed, and rises after the Water ; it would not much embarrass the Affair. For when the Particles of the Acid are divided minutely, and kept from joining by the Tenacity of the Oil, they must necessarily be affected by a less Degree of Heat than when their Gravity is increased by their Union, which happens as soon as they are in some Measure released from their Confinement. And then their Cohesion must be considerable ; for Acid

are, of all Fluids, the most ponderous, and consequently very solid.

What I have said above in regard to Vinegar, will be greatly confirmed by the following Experiments and Observations made by Leeuwenhoek.

I have had repeated Sollicitations from some eminent Men of my own Neighbourhood, to undertake an Examen of some Salts, but hitherto have not been able to comply with their Request, not only because the Business required an infinite deal of Labour, but because what I had already bestowed thereon proved unsuccessful ; and besides, in this Sort of Observations which I designed to make concerning saline Affairs, the Heat and Cold of the Air might cause various Changes in the Figures of Salts : I invented therefore a new Way of searching into these Matters, which however did not succeed with me alike in all kinds of Salts.

Some Wine Vinegar (of which I buy a Barrel yearly for the Use of my Family, and keep it a whole Year) after I had kept it about three Months in my Cellar, had contracted such an Acidity, that it far surpassed all the Vinegar that ever I had before. A Quantity of this, whenever exposed a few Hours to the Air, entertained my Sight with a vast Number of Corpuscles, which I used to call the Salt of Vinegar, represented P. 1. Fig. A, acute at both Extremities. Many of them had in the Middle an oblong Figure, of a brownish Colour ; others, of which there were also Multitudes, shone like Crystal, as in Fig. B. Some of those oblong and brownish Figures had a clear Light appearing in their brownish Colour, as is shewn Fig. C. In another Part appeared a few oval Figures, some of which carried in them a Light, of an oval Form, as in Fig. D. Among those of the aforesaid Figures A, B, D, I often fancied I saw many with a Cavity, as if we beheld the Form of some Ship ; and sometimes there appeared such a one as, I said, belonged to the first Figure, with one half brownish, and the other pellucid. Sometimes the Corpuscles rested on one another, as in Fig. E. I observed now and then some Corpuscles that made but one half of those in A, B, C ; as you see in Fig. F. Many of the Corpuscles in all the before-mentioned Figures were extremely minute, so as to become invisible. Those I mentioned, which I call the Salt of Vinegar or of Wine, were found in Vinegar in so great Plenty, that I discovered some Thousands in a small Drop, besides an incomprehensible Number of small Globules, six of which, I judged, would go to make up one of Blood. Besides these I observed yet a far greater Number of smaller Globules, the least Sort of which was so minute, that thirty-six of them would make but one of Blood. In short, it seemed incredible and inconceivable how such a Multitude of Particles could be contained in so small a Quantity of Fluid, especially limpid, such as Vinegar is. All those Corpuscles then, which I call the Salt of Vinegar, I suppose to be those acute and pungent Parts which imprint on the Tongue that Sensation or Taste which we call acid. And though I found these Parts to be of this Bigness by the common Microscope, I did not question but there were far smaller than the smallest here expressed ; and that all these Figures, both great and small, are only composed of a great Number of smaller Particles, of the same Figure, as I have often had Opportunity of observing, when I have viewed Sea Water, or common Water, in which Salt has been dissolved, in a Microscope. What fine, small, and quadrangular Figures come out of it ; so minute, that a thousand Myriads of them would not equal the Bulk of a good Sand ! And these minute Particles of Salt, though increasing in Bulk on all Sides from the Moment I first see them, yet retain their elegant quadrangular Superficies nearly. Hence I conclude, and take for granted, that I find no acute Particle in Vinegar, which is not composed of a great Number of other Particles of the same kind.

I placed a cylindrical Glass, of two Fingers Breadth in Diameter, with Vinegar in it, in my Parlour, and let it stand there open almost eight Weeks ; at the End of which, I found an infinite Number of Particles of Salt swimming on the Superficies ; which having well inspected, I could clearly perceive, what before I had not been able to find out, that these saline Figures were furnished with a Cavity ; for these Cavities, in many Particles of Salt, appeared to my Eyes very sensibly. Some of them, whose Cavities were more remarkably visible, I took care should be drawn, as you see them, Fig. G ; and for others, which afforded only a Side-prospect, you see a Part of their Cavities represented accordingly, Fig. H. You have also a little Eel, alive and full-grown, Fig. LM ; and another dead, at its full Growth, which I killed that the Painter might the better distinguish it, as you see in Fig. NO, with this Intention, partly that the Smallness of the saline Particles contained in the Vinegar might be the better perceived by comparing them with the Greatness of the Eel, (first taking Notice, that the Figures above explained, and the Eels, were taken by a common Microscope ; but that

vastly more numerous saline Particles were by me discerned in the Vinegar, which could by no Means be discovered by that Glass; partly that I might confute an Error which many have imbibed, who account for the Acidity of Vinegar merely from our Sense of the Punction of these Eels, who prick our Tongues with their sharp Tails. This, I say, is a Mistake; for if we should suppose it to be true, it would follow, that vast Quantities of Vinegar would be insipid, because destitute of these Eels; and in Winter, when they die, all Vinegar would be insipid.

I went on with my Enquiries into Vinegar, and examined such as had imbibed a Solution of Crabs-Eyes, because these are said to absorb all the Acidity of Vinegar. If this were true, those acute Particles above described must, of Necessity, assume other Figures, either blunter, or more soft and flexible ones, with which they could not prick our Tongues, nor impress that Sensation on them which we call an acid Taste. For this Purpose I took several new Glasses, and in them put some Crabs-Eyes, first broken into small Fragments only, that I might not be incommoded by the Sand if pulverised; and I found that the oblong little Figures above-mentioned, that were sharp at both Ends like a Weaver's Shuttle, were all changed into others, which had an oblong quadrangular Base, from which they ascended pyramidically, appearing like angular and polished Diamonds, represented *Fig. P.* Some few had a square Base, as in the *Fig. Q.*; and a few others a Parallelogram, as in *Fig. R.* These two last Figures I judged to have been formed by Accident, from a Defect of sufficient Matter to compleat all the Sides. Note, "The Size of these Particles must not be compared with the Size of the before-mentioned saline Particles, contained in simple Vinegar; because these saline Particles were drawn by the Help of a Microscope, which magnified vastly more than that which I had used in drawing the former, because it was impossible, by any other Means, to discover their Frame." The Number of these saline Particles was vastly great, as amounting, according to my rude Calculation, to more than six thousand in the Compass of a small Drop, no bigger than two Grains of Barley; and what I chiefly wondered at, almost all these Particles were of the same Size, which I had never observed in other kinds of Salts. I also poured out the Vinegar which contained the Crabs-Eyes, while the Effervescence continued, and it sent forth Plenty of Bubbles; and in that Vinegar I found an infinite Number of saline Particles, with quadrangular Bases, as before; but I could not perceive any Particles of that kind, of which I said vast Numbers were contained in the Vinegar before the Crabs-Eyes were put into it. The Effervescence being over, and the Bubbling almost ceased, I took into my Mouth about a third Part of a Thimble-full of this Vinegar, that I might know how it tasted; and I could perceive no Acidity, but a Sort of bitterish and very nauseous Taste. I also put some Pieces of white Chalk into Vinegar, and found that they raised as great an Effervescence and Bubbling as the Crabs-Eyes would have done, and that the acute Parts of the Vinegar produced a like Number of saline Particles, and that the acid Taste in like Manner vanished as before.

Leeuwenhoek observes, that Vinegar kills the Animalcula, which are discovered by Microscopes in the white Matter which adheres to the Teeth and Gums, as will be farther taken Notice of under the Article ANIMALCULA.

I next took Wine under my Consideration, and entered upon a fresh Examen of my own, which was very good and pleasant, and in France, for its fine Taste, is called by a new Name, *l'in de Damsifelle*; it comes from Orleans, and is brought down the River Loire to Nantes. I discovered a vast Number of very fine and exquisitely shaped Figures in it, and Multitudes of the utmost Minuteness, which, on the present Occasion, I will call the Salt of Wine. Many of these Figures agreed with the saline Particles I before proved to be in Vinegar. In some of them you might not only see a Cavity, but they were so increased in Bulk, because I had left the Wine to stand four and twenty Hours open in my Parlour, as to become equal to the bulky Particles of Vinegar, before described; as you see in *Fig. S.* I observed also some blunt Figures, whose Extremities were round, without sharp Tops, as in *Fig. T.*; and there were several, which were blunt at one End, and sharp at the other, *Fig. V.* Some differed from these last only in that they had one End flat, and not round; *Fig. W.* A few of them were oblong, and looked like an oblong Rectangle; *Fig. X.* Many had their two longest Sides somewhat rounded, and the two shortest flat, almost in the Form of a Beer-Barrel; *Fig. Y.* Some few represented a perfect Square, others were twice as long as broad, but about the shorter Sides terminated acute-wise, with a remarkable Swelling in the Middle, answering the Form of a flat-bottomed Boat with a flat Head and Stern, as in *Fig. Z.* As all these Figures, in infinite Numbers, were promiscuously swimming about in one small Drop of

Wine, it was extremely pleasing to view so great a Variety of such elegant Figures perpetually traversing one among another, and wandering about the Wine. I did not doubt but the saline Figures, above taken notice of, might imprint an acid Savour on our Tongues, were they not enveloped and depressed by vast Quantities of sweet Particles, which are contained in this and all other Sorts of Wine, and cannot be separated from them without raising in them a very strong Fermentation. For as soon as Wines begin the least to ferment, their Sweetness vanishes in part, and as the Fermentation proceeds, goes off gradually, till at last all their sweet and grateful Savour concentrates, and degenerates into the most acid of all Tastes, and for Wine gives us Vinegar. This Phenomenon confirms me in the Opinion that the grateful Savour of Wine proceeds from such Parts as are neither too sweet nor too acid, where not one prevails above another, by which means the Wine obtaining a just Temperature, and a certain Harmony of Parts, affects our Tongue and Palate with such a Savour as we call grateful. And this we are taught by daily Experience, when we mix different things, which used alone would be too sweet, or fat, or acid. One Instance shall serve for many. The sharpest Vinegar boiled over the Fire with Butter till they are well mixed makes a most grateful Sauce. As to the Sweetness of Sugar, which is itself a Salt, it consists in this: That though the Particles of Sugar are acute and angular, yet they are easily resolved when immersed in Water, especially in a warm Place, such as the Mouth, where they are not only resolved in a Moment, and united with the Saliva, but acquire such a Flexibility as to give way to all other Particles on the Tongue; by which their Complaisance they impart to us the Sense of Sweetness. These things being supposed, and inferred from Experiments, it will be very easy to account for the different Savours of Wines, even though they are produced by the same Vine. For not only the Grapes growing in the mountainous Part of the Upper Palatinate, which declines towards the South, might taste sweeter, because more exposed to the Sun's Heat, but even the acute, or sharp-pointed Parts of Wine, might acquire a still greater Rigidity, and so become more inflexible. We see also the Reason why Wine left for some time to stand open in the Air loses its grateful Savour, namely, because many of its saline Particles run together into one Mass, or become one saline Part; and this Diminution of the saline Particles, which is made by the Concretion of many small into a few great ones, cannot affect our Tongue and Palate with so grateful a Sensation, as would arise from the Titillation of more but minuter Particles.

THE DISTILLATION OF VINEGAR into an ACID WATER, an ACID SPIRIT, an EXTRACT, a SAPA, and OIL, and FIX'D Salt.

Fill a tall narrow Glass Cucurbit three fourths full with old Vinegar prepared from the best Wine, and with a moderate Fire draw off one fourth. This then will be light, and limpid, will be dispersed all over the Alembic in the form of dewy Drops, and will run down like Water, not in Stir like Spirits; the Taste of it will be somewhat acid, and if it is thrown upon Flame it will extinguish it like Water. If this Water is distilled again to one half in a clean Cucurbit, the Part that comes off first consists chiefly of Water, and is of excellent Service where a very mild Acid is required. In this the Writings of all the Chymists have agreed. Vigani, however, has taken the liberty to assert, that the Liquor which first rises in the Distillation of Vinegar is inflammable, and will burn if it is thrown upon Fire. To determine therefore this Controversy, I shall relate what, upon Examination, I have found to be the Fact. I took twenty Pints of Vinegar, which was made in France, and thence brought here directly, and which had not yet acquired the utmost Degree of Acidity, and putting it as it was into a very large Glass Retort, with a great deal of Patience, I distilled it with a very gentle Heat; upon this to my great Surprize a Vapour rose into the Receiver, which when it came to be cool, formed oily Streaks, just such as appear in the Distillation of Wine. I proceeded in the same gentle Manner, till these Striae were succeeded by some dewy Vapours dispersed about in the same Manner as happens in the Distillation of Water and Vinegar. I then immediately removed what came off first, which had a Taste like common Spirit of Wine diluted with a weak Vinegar, and when it was thrown upon a bright Flame, it burnt like Spirit of Wine. When the same Vinegar, however, was better than a Year old, and had been kept all the time in a Vessel nicely stopped, upon performing the same Operation the Success was different; for then what came off first was not an inflammable Spirit, but a mere watery Vapour of Vinegar. Hence I learned, that the inflammable Spirits are by Time intimately fixed into the Acid of the Vinegar; that hence the Taste of new Vinegar

Vinegar still continues vinous, but gradually grows sharper and sourer; that then all the first inflammable Spirits are changed, and none but those which are acid remain; that somewhat therefore truly inflammable is by this Means converted into Vinegar, which is not inflammable afterwards; and that for these Reasons what the Chymists have asserted is true, though Vigani's Opinion must be allowed so likewise, if understood of new Vinegar.

I then increased my Fire a little, in order to distil the Remainder of the old Vinegar, which was three fourths of the whole; and kept it up in this Degree, till I had drawn off two thirds of the Residuum, so that now there was only one Pint left in the Retort of four I made use of at first. This Liquor then appeared in Drops like Dew, was of a much more acid Taste than the former, not of a disagreeable Smell, but somewhat empyreumatical. It was heavier too than the former; for being mixed with it, it subsided to the bottom. This may properly be called distilled Vinegar.

Let the remaining fourth Part be distilled with a still stronger Fire out of a Glass Retort into a Receiver not too cold, a very limpid Liquor will come over exceedingly acid, and so penetrating that it will insinuate itself through the Lute; but it will scarcely rise, unless it is urged with a great Degree of Fire, and then will heat the Receiver so much, as to endanger its breaking. Even here, however, there is no Appearance of Streaks; and if this Liquor is thrown upon Fire, it extinguishes it. Proceed then till there remains only a twentieth, or less, of the Vinegar first made use of. This last Liquor will have an empyreumatical Smell.

This being done, there will be left at the bottom of the Retort, a black, thick, acid, oily Liquor, smelling very strong of an Empyreuma, which being urged with the last Degree of Fire, will yield an exceeding acid, heavy, empyreumatical, foetid Liquor, and an Oil of a surprisingly foetid Smell, whilst there remains a black, acid Caput Mortuum in the Retort. This being burnt in the open Fire, yields a bright Flame, and produces some brown Faeces, in which there is a large Quantity of an acrid alkaliescent Salt.

Hence then it appears, that there does not remain the least Appearance of Alcohol in so large a Quantity of Vinegar, that there is nothing here of the Nature of Tartar, but that the whole, a very small Part only excepted, is become volatile; and that Vinegar is absolutely of a different Nature from any other Acid which we are at present acquainted with.

These Things I have gone through in this Manner, in order to give an Insight into the Nature of Vinegar from its Composition and Resolution. This Operation, however, would be both too tedious and chargeable for preparing distilled Vinegar for common chymical Uses. For this Purpose therefore, we take a Copper Still, well tinned within, and fill it three Parts full of Vinegar; and then fixing on a Glass Head, proper for this Use, we distil with a Worm, by a Fire sufficient to make the Vinegar boil. The first fourth Part that comes off, we collect by itself, and afterwards draw off two Quarters more, which we keep under the Title of distilled Vinegar for chymical Operations. The other fourth that remains in the Still may be saved too, till by repeated Distillations a sufficient Quantity of it is got together, and then it will serve for preparing the strongest distilled Vinegar for some particular Uses. I have always, however, found it tainted by corroding the Copper, for which Reason it is dangerous to prescribe it internally.

REMARKS.

This distilled Vinegar is a saline, oily Acid, possessing the same Virtues which are above ascribed to Vinegar; but more penetrating, active and volatile, because freed from all terrestrial Impurities. The Sapa that remains in the Retort after seven Eights is drawn off by Distillation, is a most noble antiseptic Medicine, used either internally or externally, but on account of its horrible Taste, it must be taken mixed with a great deal of Sugar or Honey, as Angelus Sala has observed. This Sapa is a true detergent acid Soap, which becomes continually more efficacious in Proportion as it grows thicker; for by this Means it gradually grows of a more oily Nature. By this Experiment, we learn farther how wonderfully the distinct Elements of Bodies may lie concealed among each other; for who could believe that after Wine was grown fine, it could contain so much of an oily Matter, as we see it deposits in the making of Vinegar? Who, from Vinegar so thin and sharp, could expect a black, oily, thick, inflammable Sapa? Or who could possibly imagine, that in the most limpid distilled Vinegar, which in Thinness vies with Water, there should be an invisible pinguious Oil, and that too in great Quantity. In the mean time, some of the most eminent Artiffs have observed, that if the Acid of distilled Vinegar is combined with Powder of Lead in such a Manner, as to produce the Sugar of Lead, it then coalesces with that into a pin-

guious, tenacious kind of sweet Sugar; and that if this is then gently dried, and distilled in a Retort, it yields an oily Liquor, which burns like Spirit of Wine. So that hence it seems as if the latent sulphureous Part, which was concealed in the thin Vinegar, discovers it self by this Operation, and is, as it were, regenerated. Unless you would rather imagine, that a combustible Oil is separated from the soft metalline Body of the Lead by the Acid of the Vinegar, and consequently that the inflammable Liquor drawn off owes its Origin intirely to the Metal. This, however, I confess, does not seem probable, because the Lead when it is corroded by the acid Spirit of Nitre, though it produces a rough sweetish Vitriol in Distillation, does not, that I know of, yield such an inflammable Liquid, as it does when it is corroded by Vinegar. And then, besides, upon the Mixture of the purest Spirit of Wine with the most thoroughly calcined Salt of Tartar, there is regenerated an inflammable Liquor, as evidently appears in the Preparation of regenerated Tartar. Nothing, however, here, is more surprising, than that the exceeding acid Faeces of Vinegar should afford an alkaline Salt. *Berhaave Chem. Process 51.*

THE RECTIFICATION OF DISTILLED VINEGAR.

Take any Quantity of the distilled Vinegar of the preceding Process, and with a gentle Fire, in a tall Cucurbit, draw off half the Quantity. The half that comes off keep by itself, as do likewise that which remains in the Cucurbit. That which rises will be light, limpid, watery, and less acid, whilst that which remains after Distillation will be an exceeding strong, sharp, distilled Vinegar, and heavier than the former.

REMARKS.

The Rectification therefore of Wine and Vinegar are effected in a quite different Manner. In the former, the first volatile Part is the best; in the latter, that which is more fixed, and is left behind. Hence Vinegar, by boiling, is rendered stronger and more sharp; Wine, by being boiled, becomes weak, thick, turbid, disagreeable, and vapid. And for this Reason, if Flesh, Cartilages, Bones, and Skins, are boiled a great while in Vinegar, they are, by the Action of the Acid of the Vinegar, which is agitated, and grows stronger during the boiling, reduced at last to a thick liquid Matter. This strong distilled Vinegar is useful, in particular, in all Solutions of Metals; for these require a pretty strong Acid. *Berh. Process 52.*

The DISTILLATION of VINEGAR, as directed by the College, is thus performed:

Take enough of the best Vinegar to fill two thirds of a Retort, which place in warm Ashes; and distil first with a moderate Heat, to bring over the Phlegm; then increase the Fire by Degrees, so as to finish the Operation with a strong Heat.

THE RECTIFICATION OF DISTILLED VINEGAR by the Help of VERDIGREASE.

If Plates of the best red Copper are corroded by the Spirit that exhales from pressed Grapes, after the Must is separated, and they are laid together till they grow warm, and emit a spirituous Vapour, there will be an Efflorescence generated upon their Surfaces, of a bluish-green Colour. This is scraped off and saved, and then the Plates are again heated in the same Manner, by which Means they afford more of the same Efflorescence.

This then being collected together is called Verdigrase; which therefore is Copper corroded by this Spirit, and combined with it. And this cannot be successfully prepared in any Places, where there are not these Faeces of Must possessing such a sharp and penetrating Power. This Spirit therefore is not properly an acetose Spirit, but one rather of a middle Nature, betwixt a true Acid and a fermented vinous one. Take some of this Verdigrase, that has an agreeable Colour quite through its whole Mass, pound it, put it into a clean Glass Cucurbit, and pour upon it such a Quantity of rectified distilled Vinegar as is sufficient to cover it to the Height of ten Inches. Set the Cucurbit in a pretty great Heat, viz. one about a hundred and fifty Degrees; and with a Stick keep the Mixture frequently stirring, and in a short Time the Spirit of Vinegar will be tinged of a beautiful deep green Colour. Let it stand to settle, and then decant the clean Liquor very gently, without pouring off any of the Bottom; and upon the Residuum pour some more distilled Vinegar, and digest it; stir it, and let it stand quiet, and decant as before. Repeat this Operation as long as the Vinegar continues to be tinged; and then all these coloured Liquors, mixed together, are called a Tincture of Copper. When the Verdigrase will give out a Tincture no longer, there will be a great Quantity of it still left undissolved.

Let the tintured Liquors be filtered through Paper, and then be distilled in a clean Cucurbit, with a Heat of two hundred Degrees, till a Pellicle begins to be formed on the

very

very green Liquor that remains. The Fluid then that comes off will be limpid like Water, aqueous, and but little acid. Let the inspissated Liquor be set by in a Cellar, and it will, in a short Time, shoot into most beautiful, green, pellucid Crystals, which will fasten particularly to the Sides of the Glass, and incrustate it over. Pour off the remaining Liquor, as nicely as you can, from the crystalline Crust, which must be dried as gently as possible in a hot Air, and carefully separated from the Glass; and so kept, that it may not be affected with too great a Degree of Heat, for fear of its becoming opaque. Let the decanted Liquor be again inspissated to a Pellicle, and then formed into the same Crystals, which must be treated with the same Caution as the former. And thus you must proceed, till by this Means all the Copper that was contained in the Verdigrease is reduced to these pure Crystals of Verdigrease, which in the Shops go commonly by the Name of distilled Verdigrease. If this is reduced to Powder, it gives a most beautiful Pigment. If it is sprinkled upon a foul Ulcer, it excites Pain, forms an Escar, and thus dries up the Mouth of the Ulcer; whilst at the same time an Inflammation is excited underneath, which separates the Crust, by which Means the worst kind of Ulcers are sometimes happily cured; for it is of the same Nature as the Caustics made with Mercury and Silver.

When you have got a sufficient Quantity of such Crystals, put them in a Glass Retort, and distil them with a Fire gradually increased, and you will have first a small Quantity of a watery Liquor, which must be kept by itself, or thrown away. When this is drawn off, there will succeed an acid, pinguious Liquor, which will run down in Streaks, is considerably heavy, and is the most saturated with an Acid of all the Liquors that can, by any Art whatever, be prepared from Vinegar. Basil Valentine therefore recommends this for the Solution of Pearls, in his *Manuductio Medicinæ*, and Zwelfer being acquainted with this, boasted of his *Acetum Esurinum*, pretending to be Master of the Alcahest, for which he was sharply handled by Tachenius. When the Operation is over, there remains the Powder of the corroded Copper, which may be again dissolved in distilled Vinegar, and be formed into green Crystals as before.

REMARKS.

This fermented Acid is the strongest that can be procured from Vegetables, and consequently possesses the most excellent Virtues, both chymical and medicinal, that can be expected from such an Acid. As it is efficacious therefore in restoring an Appetite, where it is destroyed by a Putrefaction of the Bile, or other Humours, hence it has obtained the Name of *Acetum Esurinum*, Hungry Vinegar. But in those Cases where the Appetite is palled by a predominant Acid, which the Physicians are sensible is often the Case, there this only increases the Cause, and so proves prejudicial. This Acid, however, by being mixed with absorbent or alcalious Substances, will lose its acid Virtues in the same Manner as all others do; and therefore Zwelfer, who asserts the contrary, in this Case must not be regarded. In order now to understand the proper Effect of this Operation, we must observe, that distilled Vinegar consists of Water, and an Acid. This Acid is attracted out of the Vinegar by the Copper, whilst the Water is unaffected by it, and left by itself: The Acid then adheres to the Copper, and subsists with it in the Form of a solid Body; and scarcely at all altered, till by the Force of the Fire it is separated from it in its former Nature, and then it leaves the Copper reduced to Powder, but without any Alteration. This now, as far as I have been able to inform myself, cannot be effected by any other but Copper; for Gold, Silver, Mercury, and Tin, are not dissolved by it; and though Iron and Lead are, yet they change it in such a Manner, that a pure acetose Acid cannot be procured from them again, but something of a very different Nature. Hence then we see what a prodigious Difference there is in Solutions; the Acid of Vinegar is attracted into Copper, and is thence procured again by Distillation, very little altered, being only freed from its watery Part; Lead attracts the same Acid into it, and rejects the Water; and yet, if you endeavour to separate it by Distillation, you have an oily pinguious Liquor, of a quite different Nature from that of Vinegar; and if Iron is dissolved by the same Acid, it yields nothing again but Water, and surprisingly altered. And as for other Absorbents, or fixed or volatile Alkali's, if it is combined with any of them, it never returns back again a pure Acid; so that, perhaps, Copper alone, or Verdigrease made from it, is the only Body we are acquainted with that is disposed to sharpen and exalt the pure Acid of Vinegar.

This is called by some of the Chymists, *Acetosa Esurina*; and by some Dispensatory Writers, *Spiritus Aceti*.

The Antients, as well as Moderns, had various Preparations of Vinegar, calculated for different Purposes; of these I shall mention some, for to describe them all would take a Volume.

The first is the *Oxalme*; of which Dioscorides gives the following Account, l. v. c. 23.

OXALME.

Vinegar impregnated with Salt, or acid Brine, which they call *Oxalme*, used as a Fomentation, cures spreading and putrid Ulcers, and the Bite of Dogs and venomous Creatures. It stops the Bleeding that follows upon Lithotomy, if immediately after the Operation it is poured hot into the Wound; and is good for a Prolapsus Ani, Dysenteries, attended with Corrosions of the Intestines. It is given in Clysters, but it must immediately be followed with one of Milk. It also cleanses scald and scabby Heads, that are washed therewith.

THYMOXALME.

The Antients prescribed the *Thymoxalme* for Weakness of the Stomach, for the Gout, and for Inflammations. The Dose is about a Quarter of a Pint, diluted with warm Water. It purges black and gross Humours. It is made after the following Manner:

Take an Acetabulum (two Ounces) of bruised Thyme, as much Salt; of coarse Meal, Rue, Pennyroyal, each a little; put them all into a Pot, and pour upon them three Sextarii (Pints) of Water, and as many Cyathi (four Ounces and a half) of Vinegar; cover the Pot with a Linen Cloth, and let it stand in the Air. *Dioscorides, l. v. c. 24.*

ACETUM AMINUM is White-wine Vinegar. *Rulandus, Johnson.*

The three following are from BATES.

ACETUM LETHARGIRITES. *Vinegar of Litharge.*

Take Litharge of Gold powdered four Ounces, Of the best Vinegar half a Pint; Digest for three Days, often shaking the Vessel; then filtrate it.

It is designed only as a Wash for a red Face, and to cure Pimples.

ACETUM MELLIS. *Vinegar of Honey.*

Take Honey a Pound, of the best Vinegar three Pints; distil in a Sand-Heat, and rectify.

It is said to dissolve Stones, without previous Calcination.

ACETUM PESTILENTIALE. *Pestilential Vinegar.*

Take of the Roots of Angelica and Zedoary, of each an Ounce, Juniper-berries two Ounces, Rue three Handfuls, the best Vinegar three Pints; let them macerate together, and strain them.

Bates recommends it as a Suffitus, or Gargarism, in Time of pestilential Infection.

ACETUM ROSACEUM. *Vinegar of Roses.*

Take of red Roses clipped from their white Heels one Pound, the best Vinegar one Gallon; let them stand to infuse in the Sun, put up in a well closed Vessel, forty Days; then strain off the Liquor.

This is sooner made by boiling the Ingredients together in a Bath-Heat for a few Hours. *Pharmacopœia Edinburgensis.*

The Vinegar of Roses is seldom used but in Embrocations for the Head or Temples, in some kinds of the Head-ach, where it frequently does great Service. *Quincy.*

It might likewise be usefully added to Julaps, Draughts, or the like, in malignant Fevers, where cordial Acids are required. *Shaw's Notes.*

ACETUM RUTACEUM. *Vinegar of Rue.*

Infuse the Leaves of Rue and Scordium, that is, Water Germander, picked from the thick Stalks, each three Handfuls; Juniper-berries and Angelica Roots, each two Ounces; Zedoary and Seville Orange-peels, each one Ounce, in the best Vinegar eight Pints. Let them digest for a Month, and then press the Vinegar from the Ingredients; which keep for Use.

This is not prescribed, or kept in the Shops; but is so easily made by any private Family, and is so good a Medicine to procure Sweat, upon any Threatnings of a Fever, or upon a Surfeit, that it is very well worth any one's making, and keeping in case of Necessity. It may be given from half a Spoonful to two or three Spoonfuls, in any convenient warm Liquor. And if the Patient is kept warm with Cloths, it cannot fail of raising a Sweat; and it is the best Succedaneum to Treacle-water in the World, where that cannot be had for a sudden Occasion. *Quincy.*

In the same Manner a Vinegar is made with Elder, mentioned in the Edinburgh Pharmacopœia, under the Title of *Acetum Sambucinum*, which partakes of the Virtue of the Elder.

ACETUM SCILLITICUM, *Vinegar of Squills*, is thus prepared according to *Dioscorides*.

Take white Squills; and having cleansed them, cut them into Slices, and string them on a Line, so as not to touch one

one another, and let them hang in the Shade to dry forty Days. Take of these a Pound (the Pound was about ten Ounces) and infuse them in six Quarts of good Vinegar, and let them stand macerating in the Sun seven Days in a Vessel well stopped. Then take out the Squills, squeeze them and throw them away, but strain off the Vinegar into a Pot, and set it aside for Use. Some put a Pound of the Squills into five Pints of Vinegar. Others infuse the same Quantity, as soon as they have cleaned the Squills, without drying them, and let them macerate for six Months; and this Sort is of a more inciding Nature.

Vinegar of Squills is good to consolidate the too lax and humid Gums, and fasten loose Teeth. It is excellent to heal putrid Ulcers in the Mouth, and for an offensive Breath. Drinking of it hardens the Throat and Jaws, and make them callous; it helps the Voice, and renders it clear and sonorous. It is administered to such as labour under Infirmities of the Stomach, have weak Digestions, to epileptical, vertiginous, melancholy, and mad People. It is given also in hysteric Fits, in Disorders of the Spleen, and the Sciatica. It wonderfully clears and revives infirm Persons, renders the Body sound, and gives a good Colour. It quickens the Sight, and, dropped or poured into the Ears, helps Thickness of Hearing. In short, it is good for every Thing except internal Exulcerations, Pains of the Head, and Distempers of the Nerves.

It is to be drank every Day fasting, beginning with a small Quantity, which by Degrees may be increased to a Cyathus (an Ounce and a half). Some prescribe twice as much or more.

The *Acetum Scilliticum*, or Vinegar of Squills, as directed by our College, is something different from this of Dioscorides.

ACETUM SCILLITICUM, Vinegar of Squills.

Take that Part of the Squills between the outer Leaves and the Core, cut it into small Pieces, which cleanse and expose to Heat for thirty Days; and put one Pound of it into a Bottle with six Pints of the best Vinegar; and in the Summer Time let the Vessel, close stopped, be placed in the Sun for thirty Days; then open it, and strain it out for Use.

This is sometimes used of itself, but chiefly made into Oxy-mel Scilliticum.

Vinegar of Squills is said to be the Invention of Pythagoras, or that he learned the Use of it from Epimenides. He began at the fiftieth Year of his Age to take some of this Vinegar every Day, and to this it was attributed that he lived in perfect Health to the Age of a hundred and seventeen. It is esteemed to preserve the Hearing, and open the auditory Passage, used by Way of Gargarium. The auditory Passage is the same as what has been called, by the Moderns, the Tuba Eustachiana, but it was first discovered by Alcmæon, a Disciple of Pythagoras. *Galen. Pliny. Schulzius.*

ACETUM THERIACALE, Treacle Vinegar.

Take of the Treacle of Andromachus, or that of the College of Edinburgh one Pound, best Vinegar two Quarts, digest them together, with a gentle Heat, for three Days, and afterwards strain off the Liquor. *Pharmacopæia Edinburgensis.*

This promises very fair, for being an admirable medicated Vinegar; and in many Cases preferable to Treacle-water; as particularly where a sudden Sweat is required, a venomous Bite, or any Infection received, &c. on which Account something like it richly deserves a Place in all publick Dispensatories, and consequently in the Shops. *Shaw's Notes.*

To these I shall add the Oxy-mels, that the Preparations of Vinegar may not be separated.

Oxy-mel of DIOSCORIDES.

Oxy-mel is made after the following Manner;

Take two Pints and a half of Vinegar, one Pint of Sea-water, ten Pints of Honey, and five Pints of common Water; mix them together and set the Liquor over the Fire, and let it boil up ten Times; then take it off, and, when it is cool, pour it into a Vessel.

Oxy-mel is good to expel gross Humours, and help such as are troubled with the Sciatica, Gout, or Epilepsy. It is a Remedy for the Bite of that Viper called Seps, and for the Poison of the Peplus [*μυκάντρον*] and white Chamæleon [*ἰχθυόλας*] and, used as a Gargarism, is good for a Quinsy.

Very different from this is our Oxy-mel as directed by the College under the Name of

OXYMEL SIMPLEX, simple Oxy-mel.

Take two Pounds of the best Honey, of White-wine Vinegar one Pint, and boil them over a gentle Heat into the Consistence of a thin Syrup.

OXYMEL COMPOSITUM, compound Oxy-mel.

Take of the Roots of Fennel, Smallage, Parsley, Butchers Broom, and Asparagus, each two Ounces; of the Seeds of

Smallage, Parsley, Fennel, and Anniseeds, each one Ounce. After the Roots are washed and sliced, and the Seeds bruised, infuse them together in ten Pints of Water and one Pint and a half of Vinegar. The Day following boil them by a moderate Fire, to the Consumption of a third Part of the Liquor; strain and clarify the Remainder, and mix with it three Pounds of Honey, and over a gentle Heat, with continual Scumming, boil it to the Consistence of a thin Syrup, S. A. *London Dispensatory.*

OXYMEL PECTORALE, Pectoral Oxy-mel.

Take of the Roots of Elicampane and Florentine Orrice, each half an Ounce; slice, bruise, and boil them in a Quart of Spring-water, till it comes to a Pint and a half; to the strained Liquor add of unprepared Gum Ammoniac an Ounce dissolved in four Ounces of Vinegar; add also four Ounces of Honey; then boil them together, scum the Matter and strain it. *Edinburgh Dispensatory.*

This promises to be a very effectual Medicine, and seems one of the best that was ever prescribed in this Form; it is somewhat nauseous indeed, but it will doubtless cause a large Expectoration, and cannot but be serviceable in asthmatic and phthisical Cases.

OXYMEL PECTORALE, Pectoral Oxy-mel.

Take of the Roots of Elicampane, Asarabacca, and Ginger, each six Ounces; or Florentine Orrice, Galangal Roots sliced, and white Pepper a little bruised, each three Ounces, Spring-water, ten Pints, White-wine Vinegar, six Pints; steep them together twenty-four Hours, then boil to ten Pints; strain and add Honey six Pounds; then boil and clarify; to which add of the Extract of Liquorica half a Pound, and make into a Syrup.

This is an efficacious Detergent, and greatly promotes Expectoration; for which Purpose it is much given in all asthmatic Cases, and where the Breast is clogged with viscid Humours, two or three Spoonfuls are ordered to be taken at any Time. *Pharmacopæia Pauperum.*

OXYMEL SCILLITICUM, Oxy-mel of Squills.

Take of Honey three Pounds, and of Vinegar of Squills a Quart; boil them together to a Syrup; observing to scum it in the Operation. *London and Edinburgh Dispensatory.*

It is said, Acetum Scilliticum suffers no Obstructions to be generated in the Body, dissolves all beginning Coagulations, keeps the Body open, and provokes Urine.

Oxy-mel of Squills is a gentle Vomit, if taken in a large Quantity, and inclines to a Nausea in a small one. Add to this, that it is somewhat nauseous to most Palates, and for these Reasons it would be somewhat difficult to introduce it into Practice as a Preservative against Distempers. But as a Remedy it is deservedly in great Esteem, and much used. There is a pretty and commodious Way of giving it loaded with some agreeable compound Water, and Syrup, which takes off the disagreeable Taste in some Degree, and prevents it from causing Efforts to vomit. In Dropsies and Asthmas, the following Mixture is frequently given at Bed-time, and is of great Efficacy, as it relieves the Shortness of Breath, and is very diuretic.

Take of strong Cinnamon-water, Syrup of Balsam, each half an Ounce; Oxy-mel of Squills two or three Drams, mix them.

Many other Forms of this Kind are contrived to suit particular Cases either to be taken at once, or by Spoonfuls often repeated. See OXYMEL. See SQUILLA. See APOMEL.

Chambers makes a little Mistake, when he says, the College retains the Acetum Theriacale Norimbergense, for upon the last Regulation, which happened many Years before Mr. Chambers wrote his Book, it was left out.

The Chymists talk much of their philosophical Vinegar, but have not been so obliging as to inform us what they mean. It is probably either Mercury itself, or some mercurial Water. The Account Lagneus gives of it is thus: *Acetum Philosophorum est Denigratio nostra, quæ est Lignum Dissolutionis veræ.* This Definition I give as a Specimen; but it will neither admit of being translated or understood. A Solution of Butter of Antimony in Water is sometimes called Acetum Philosophorum.

ACETUM RADICATUM. Boerhaave thinks the Tartarus Regeneratus is the *Acetum Radicatum* of the old Chymists. See TARTARUS REGENERATUS.

ACHAIL. Alum Water. *Johnson.*

ACHAMELECH. The same as Acamech.

ACHAOVAN, or *ACHAOVA.*

Some take an Herb, very like Chamomile, which they call *Achave*, or *Uchoue*, and sometimes *Alucuan*, for *Achaova*. This Herb grows very plentifully in Egypt, and especially at Cayro, in a Place called Shechie. It is not quite so high as Chamomile, but

but very much resembles it in Flowers, and Feverfew in Leaves. Prosp. Alpinus has often gathered it green, and found it of an obscure, but not very agreeable Taste and Smell. Others perhaps, on the Authority of Avicenna, who said, that *Achaova* was of an acid Taste and Smell, have mistaken it for another white aromatic Plant, almost as acrid as *Origanum*. Hence it appears, that Avicenna was not quite wrong, when he told us, that the Flowers of *Achaova* came nearest those of *Marum* in Smell and Taste, meaning the above-mentioned Plant of an acrid Taste and Smell. But whether it be the true *Marum* or not, I cannot determine. *Prosper Alpinus de Medicina Aegyptiorum*.

ACHARISTON. *Αχαρίστον*. From *a* Negative, and *χαρις*, Thanks, because esteemed too precious to be given away. It is an Epithet of many Antidotes and Collyria described by the ancient medicinal Writers. There are two Collyria under this Title mentioned by Aëtius, both of the astringent Kind, and called *ἐγκυρῶν*, from *ἐγκύη*, or Heath, which is one of its Ingredients. Galen gives the Forms of two as follows, which are likewise astringent. The first is the dry *Achariston* of Philoxenus, which was thus prepared.

Take of Cadmia ten Drams, of Chalcitis eight Drams, of Aloes two Oboli, of Verdigrease two Oboli, ten Grains of Pepper, and one Dram of the Flower of Roses. Beat them all together.

The other *Achariston*, which the Egyptian Physicians used in the most obstinate Rheums, with good Success, especially on robust Constitutions, was the following.

Take of Cadmia sixteen Drams, of Acacia eight Drams, of Copper calcined and washed eight Drams, of Opium, Berries of Erica, Myrrh, each four Drams, of Gum sixteen Grains; put them in Water, and use them with Woman's Milk.

Celsus describes another which he intitles, *Theban Collyrium sive Achariston, viz.*

Take of Castor, Indian Spikenard, each p. i. of Lycium, Juice of Poppy, each an equal Quantity, of Myrrh p. ii. of Saffron, Clove-walnut, Aloes, each p. iii. of Cadmia beaten with the Clove-walnut, each p. viii. of Gum p. x. of the Juice of Acacia p. xv. of Antimony the same Quantity. Put them in Rain-water.

Another *Achariston* is ascribed to Aretæus, and described by *Marcellus, Lib. 8.*

Acharistos is also the Name of an Antidote described by Aëtius, *Lib. 13. Cap. 109*; and also by *Marcellus*, whose Advice is, to ask the Fee of the Patient immediately after the Remedy is administered; for many, says he, whose Cure has been quick, have behaved ungratefully, whence the Antidote took its Name *Acharistos*, that is to say, Thankless. But see the Receipt,

Take of Cassia, Myrrh, white and black Pepper, Castor, Galbanum, Serrax, Saffron, Costus, Opium, Spikenard, each an equal Weight, Honey a sufficient Quantity. The Dose is the Bigness of a Bean; it is a Remedy for old Puerulencies in the Breast. Taken in Hydromel it cures the Cholic and Distempers of the Liver; but in Oxymel is its proper Vehicle for Disorders of the Spleen. *Gorræus, Med. Def.*

ACHATES, an Agate, a precious Stone, which takes its Name from a River of Sicily, so called, where it was first found. It is various, not only in Colours, but in the very Images of Things, which it represents, not done by the Hand of the Painter, but formed by Nature itself. For the Veins and Spots run in and out, and intermingle in such a Manner, that sometimes you see the Figure of a Dove, and then it is called *Phaëchates*; sometimes that of a Horn, whence it is named *Kerachates*; sometimes a Tree appears, or perhaps two, or more, like a little Wood, which gives it the Title of *Dendrachates*. In others of these Stones you see the Resemblances of Chariots, Rivers, several Sorts of Birds, and Cattle, and Men among the rest. Pyrrhus, King of Epirus, had an Agate Stone, in which were represented the nine Muses, and Apollo holding his Harp, not the Work of Art, but drawn by Nature, the Spots, as Pliny says, so happily laid and interspersed, that each of the Nine had her proper Symbol. India abounds with this Sort of *Agates*. They are of a black, dark, or Ash Colour, or like that of Coral, the Skin of an Hyena, Lion, or Panther: This latter they call *Pardalion*, the other *Leontion*, and *Leontideiran*. These Colours, especially the first named, are sometimes striped with Veins of White, and then the Stone is called *Leucachates*, sometimes with Blood-coloured ones, and then it is *Haimachates*, or with Red, like the Sarda or Cornelian Stone, which make it a *Sardachates*.

But though it is said to take its Name from a River of Sicily, it is found in many other Countries, as Pliny remarks. It still retains its old Name, changing only one Letter.

Of this Stone, especially that Sort called *Leontion*, is made the Plaister named *Diachaton*, which heals the Bites of venomous

Creatures, discusses hard Tumours, and Strumæ; and matulates, suppurates, and breaks an Abscess. See it described by *Aëtius, lib. 15. Gorræus, Def. Med.* Held in the Mouth, it quenches Thirst in Fevers. *Dale.*

ACHATES.

Achates, Offic. Worm 96. Mer. Pin. 209. Boet. 245. Charlt. Foss. 34. De Laet. 79. Schw. 357. Aldrov. Mus. Metall. 904. Calc. Mus. 247. Geoff. Prælect. 78. *Lapis Jaspis Achates Antiquorum, Agatha vulgo dictus*, Cup. Hort. Cath. Supp. 2. 44. The *AGATE Dale.*

Agate is a precious Stone, reckoned commonly between the Opaque and Transparent, of different Colours, and marked with Spots or Specks; which are imagined to represent Trees, Fishes, and other Things. The finest come from the East-Indies, the common Sort from Germany, Bohemia, &c. Great Virtues have been attributed to this Stone, both Cardiac and Alexipharmac; but they seem all to be imaginary. *Geoffroy.*

ACHEIR. *Ἀχειρ*, from *a* Negative, and *χειρ*, a Hand. It signifies without Hands. *Galen.*

ACHEMENIS. An Herb mentioned by Pliny, which was fabled by the Antients to spread Terror throughout an Army, and make them fly, if thrown into the Midst of it.

ACHICOLUM. This is used by Cœlius Aurelianus, *Acut. l. 3. c. 17.* to express the Fornix, Tholus, or Sudatorium of the ancient Baths, which was a hot Room where they used to sweat. It is also called *Architholus*.

ACHILLEA. A Species of the Millefolium, called Achilles's Iron Wort, which will be taken Notice of under the Article *MILLEFOLIUM*.

ACHILLEA MONTANA. Five-leaved Mountain Ragwort. It is a Species of the Jacobæa, which see.

These are sometimes spelt *Achyllea* with a *y*, but that is not right, as they take their Name from Achilles.

ACHILLEION. A Sort of Sponge proper for making Tents, so called from the Use Achilles is said to have made of it. *Gorræus.*

ACHILLEIOS. A Sort of Maza made of Achillean Barley. *Gorræus.*

ACHILLEIS. *Ἀχίλλειος*. A large Sort of Barley mentioned by Theophrastus. It was thus called, according to Galen, from a Husbandman, whose Name was Achilles. But it seems more probable, that it derived its Name from its being the largest and best Sort of Barley, as Achilles was the best Warrior in the Grecian Army.

It is mentioned by Aristophanes and Sophocles.

Hippocrates in his third Book, de Morbis, gives the Preparation of Barley-water made with this Sort, which he recommends as proper to be drank in burning Fevers, and this is the first Instance of the Use of Barley-water, a Remedy of great Efficacy in the Case he directs it for. Take, says he, of *Achillean* Barley, dried, a Hemina (*κοτύλη* about half a Pint) take off the Beards (*ἀθήρα*) and wash it, then pour upon it a Gallon (*χόια*, about six Pints) of Water, and boil it to the Consumption of one half; cool the Remainder, and give it for Drink. And soon after he advises the *Achillean* Barley as an Ingredient in an Infusion, which he directs for a Jaundice.

ACHILLES. This Hero is said to have been taught Medicine by Chiron the Centaur his Tutor. His Spear was endued with a medicinal Virtue, and cured the Wounds it made. It was of Brass, and Pausanias relates, that it was in his Days preserved in the Temple of Minerva at Phaselis, a City of Pamphilia. This Spear was the Gift of Chiron to Peleus the Father of Achilles, as we learn from Homer, *Iliad l. 6. V. 143. 144.* Telephus, it is said, was cured by Achilles with this Spear; but Pliny says, his Wound was healed by the Achillea, a Plant introduced into Medicine by Achilles, and from whom it takes the Name. Others attribute the Discovery of the Virtues of Verdigrease to this Hero, an Ingredient very useful to Surgeons, and of great Importance in the Cure of Ulcers.

ACHILLIS TENDO. See *TENDO ACHILLIS*.

ACHIMBASSI. The Name of an Office, or rather Officer, at Grand Cayro. It signifies the chief Physician, or Prefect of the Physicians. His Business is to examine into the Qualifications of those who practise Physic in that City, and license them. Little Regard is paid to the Merit and Learning of the Person who is made *Achimbassi*, for the Bassa of Cayro always confers it on the Person that pays him most for it. And this Officer considers as little the Qualifications of the Candidates who present themselves for Licences, but, like our Spiritual Courts, permits every Body indiscriminately to practise, provided they pay their Fees. *Prosper Alpinus.*

ACHIOTL. This is the *Orleana*, Offic. Mont. Exot. 10. Commel. Plant. Usu 81. *Orleana seu Orellana folliculis lappaceis*, Herm. Cat. Hort. Lugd. Bat. 464. Pluck. Almag. 272. Phytog. 209. f. 4. *Orleana seu Orellana, sive Urucu*, Parad. Bat. Prod. 357. *Urucu* Pison. (Ed. 1648) 65. (Ed. 1658) 133. Cat. Jam. 150. Hist. 2. 52. *Urucu Brasiliensis*, Marteg. 61. *Kalebakā, Daburi*, Ger. Emac. 1554. *Achiott seu Medicina tingendo apta*, Hern. 74. *Arbor Mexicana fructu Castaneæ, coccifera*, C. B. Pin. 419. Raii Hist. 2. 1771. Jons. Dendr. 119. *Bixa Orindl*, J. B. 1. 442. *Metella Americana maxima tinctoria*,

ria, Tourn. Inst. 242. Boerh. Ind. A. 208. *Arbor finium regundorum*, Scalig. ARNOTTO. Dale.

Its CHARACTERS are,

A broad, roundish Leaf; a large, Carnation-coloured, pentapetalous Flower; and short, pyramidical Pods, prickly, and full of Grain.

It is cultivated in New Spain and Brasil.

The Tincture made of the Fruit, and used in the famous Composition, called Chocolate, is thus prepared: They take the Grains, when thoroughly ripe, and infuse them in hot Water. What subsides is made into Lozenges, which are used in dying Wool, or as a Fucus or Paint for the Face, commonly known by the Name of Spanish Wool.

The Tincture, mixed with some suitable Water, either drank, or outwardly applied, mitigates the Heat of Fevers, stops the bloody Flux, and discusses Tumours. *Pison.*

The Roucou, which the Indians call *Achiote* or *Urucu*; the Dutch *Orleane*; and we *Raucon*, is a Meal of Flower, which the Inhabitants of the Leeward Islands, and St. Domingo, make from a little red Grain or Seed, which is found in a Husk or Shell.

The Shrub, which bears the Roucou, produces, according to Father du Tertre, from the Root several Shoots that grow into Shrubs, and divide themselves into several little Branches: The Leaves are very like those of Lilac, and bear twice a Year several Clusters of Flowers, that are white, mixed with red, and in Shape like those of black Hellebore. The Flowers are full of a vast many little Stamina, or yellow Threads tipped with red: At the Fall of the Flowers come dark coloured Buttons all haired, or bristled, with fine little brown Points, which do not prick at all. When they are ripe, there are in the Middle two double Seeds, or Kernels, intirely surrounded with a Kind of Vermillion, or liquid red Dye, which the Natives call *Roucou*: It is with this they paint themselves when they travel abroad; but, before they use it, it is mixed with certain Oils which they draw from some Seeds.

The Europeans do it with Linseed Oil; they beat it in a Mortar with this Oil, and, after they have reduced it to a Mass, they send it into France, &c. where they use it to colour Wax yellow, when it is too pale, and likewise to give a Colour to Chocolate. There are likewise those who beat it in a Mortar without Oil, and make it into a Mass, or into Cakes; which, being dissolved in Urine, makes a red Tincture, which stains as well as the best Dye in Europe, and is a very good Commodity.

This Account of *Roucou* is quite different from that of the *Sieur Francis Rousseau*, who wrote me Word it was a Tree of eight or nine Feet high, whose Leaves were like those of the Peach Tree; after which came Husks, or Shells, much like the Chestnut Shell, furnished with little Prickles throughout; within it is a little red Seed, which they bruise in a Mortar, or on a Stone, and that they put into a Vessel of Water. In short, the *Roucou* is made in those Islands after the same Manner as we make Starch, not according as Mr. Meuve has described, but just as our Starch-makers work; and after it is made into Cakes, and dried, it is brought hither.

This last Relation of the *Sieur Rousseau* is much juster than the first; for as much as the Cods or Husks I have, exactly agree with his Description. Besides it is easy to see by the *Roucou* which we sell, especially when it is good, that it was never steeped in Oil, in that the good Smell of the true *Roucou* makes it distinguishable from any Mixture. Again, we ought to undeceive those who believe, that the *Achiote* is made as the *Sieur Blegny* describes it, when he says, that it is the thickened Juice which is drawn from the Fruit of the *Achiote*, which is a Fruit Tree of America. That this Fruit is a red Seed or Grain, which is found in great Plenty in large round Husks, or Shells; that, when they take this Seed from the Husks, they stamp or beat it in a Mortar, and then press out the Juice, which they set afterwards in a hot Place, to evaporate the Moisture, and, when it grows thick almost like Paste, they work it into several Forms or Shapes; which, being thoroughly dry, are properly called *Achiote*: For on the contrary, it is certain, that the *Roucou* is made like Starch, and that it is impossible to draw a Juice from it, since the Matter, out of which it is made, is a reddish downy Substance, which is found sticking to the Seed that is in the Husks, which they cannot separate without Water, in the same Manner as our Starch-makers separate the Meal from the Bran to make Starch of; and not any Juice expressed, or drawn from the Grain, as that Author would have.

Chuse such *Roucou* as is of an Orrice or Violet Smell, the driest and highest coloured you can get. *Roucou* of this Kind is that, which ought to be called *Achiote*; for the chief Part of that we sell is moist, foul, mouldy, &c. so that, in a Word, it is unfit to be given inwardly, mixed in Chocolate, or otherwise. It is much used by the Dyers. There was brought formerly from these Islands, and also from Holland, a *Roucou*, in little Cakes, of the Shape of a Crown-piece, which was endowed with a great many Excellencies, and very good for internal Uses; which is quite contrary to what we have brought at this Time, which is in great square Cakes, like Marseilles Soap, or in round

Balls, and which is sometimes so base and stinking, that it is almost impossible to bear it.

The savage Americans cultivate the Shrubs that bear the *Roucou* with great Industry, because of the many Uses they make of them: Such as, first, to adorn and furnish their Gardens, and from thence to cover or thatch their Houses. Secondly, being a hard dry Wood, it serves for Fuel. Thirdly, the Bark serves them for Cordage, and to make Linnen. Fourthly, they put the Leaves and Root into their Sauces, to give them a Relish, and to tinge them of a Saffron Colour. Fifthly, from the Seed they make the *Roucou*, as well to paint their Bodies when worked in Oil, especially on great Days of Rejoicing, as to exchange for other Commodities with Advantage. *Pomet.*

Roucou, called by the Indians *Achiote*, or *Urucu*, is a dry Paste, made from a little red Seed, which is found in a longish Husk or Cod, that has the Shape of the Mirobalans, but prickly, almost like those of Chestnuts. Authors are not agreed about the Kind of Tree, or Shrub, that bears this Fruit; some saying that the Leaves are like those of Lilac, and others Peach Leaves.

To prepare *Roucou*, they bruise or pound the red Seed, then they dilute it with Water, and pass it through Strainers, to separate the Bran, or grosser Parts; afterwards they dry this into a Sort of Flower or Starch. Chuse the driest, of a violet Colour. The Dyers use it chiefly, though it is sometimes made Use of in Chocolate. If it be pure, it strengthens the Stomach, stops Looseness, helps Digestion, promotes Respiration, and provokes Urine. *Lemery.*

ACHIOTE. The red Grains of the *Achiote*, made into Lozenges, or Pastils, for mixing with Chocolate or Dying. *Raii Hist. Plant.*

ACHLADES. A Sort of wild Pear that grows in the Mountains of Crete. *Raii Spinf. Stirp. Europ.*

ACHLYS. Ἀχλὺς, Darkness, Cloudiness, and is generally applied to a close, foggy Air, or a Mist. Hence ἀχλὺς δεινὰ, a dark, or misty Eye, or that sees with Difficulty, mentioned by Hippocrates as a bad Symptom in acute Disorders. *Prædict. L. 1. 46.* and again in the *Coacæ Prænotiones 218.* Hence also the South-Winds are called ἀχλὺς δεινὰ by the same Author, *Aph. 5. 1. 3.* because they incline to Dimness of Sight, and, as Celsus observes, make all the Senses dull, *L. 2. C. 1.* Those also who, during a Fever, are affected with a Dimness of Sight are called Ἀχλὺς δεινὰ. *Coac. Prænot. 35.* Tho' others think it means those who labour under violent Agitations of the Humours; or where the Colour and Complexion are altered and obscured by Distempers. But Galen interprets it of those who, during Sickness, lose that usual Lustre and Liveliness observed about the Pupil of the Eye, during Health.

Achlys (Ἀχλὺς) also signifies condensed Air in the Uterus: *Hippocrat. de Morb. Mul. L. 2.*

It further signifies a small Mark or Scar over the Pupil of the Eye, left upon the Cornea by a superficial Exulceration, as Galen interprets it. Or, according to *Ætius*, the Exulceration itself almost covering the Pupil, of a very light blue Colour. And thus Ἀχλὺς is to be understood. *Hippocrat. Prædict. L. 2.*

ACHMADIUM, or ACHIMADIUM. A Corruption of the Arabic *Achman*, or *Achimian*, Antimony.

ACHNE. Ἀχνη. This signifies Chaff, and the Froth of the Sea, or of Water in general; or any Thing that is light or soft.

But it is used in a different Sense by Physicians; and thus Hippocrates *Epidem. Sect. 1. N. 16.* seems to explain it, when enumerating many Circumstances of bad Presage relating to the Eyes, in Fevers, amongst the rest mentions, καὶ τὸ ἐπιχειρῆμα νοῦν ἐπὶν ἄχνη, something dried upon them like Froth. By this, Physicians, who have attended the Sick, will know he does not mean those hard Concretions like Gum, that sometimes glue the Eye-lids together, but a Sort of soft, white Mucilage that swims in the Eye, which is very frequent in Fevers. And in this Sense Ἀχνη δεινὰ, *Coac. Prænot. 225.* is to be taken, though *Foësius* has thought proper to substitute Ἀχλὺς δεινὰ instead of it in this Place.

Nor is this peculiar to the Eye, for Hippocrates *de internis Affect.* speaking of an Exulceration of the Lungs, says, that sometimes in this Case the Fauces are full of (ἄχνη) a frothy Matter: The Interpreters translate it Lanugo, which I don't think expresses the Meaning of the Author.

Achie also signifies Lint. Thus in a Fracture of the Nose, when the Cartilage is depressed, Hippocrates, *Mochl. 2.* and *de Art. 18.* advises to support it with Lint wrapped up in something that will not irritate, and introduced into the Nostrils.

The same Author directs Lint to be dipped in the Gall of an Ox boiled in Oil, and to be used as a Pessary, to procure Conception, (*de Morb. Mulierum, L. 1.*) and again *de Morb. Mulierum, L. 2.* he uses Lint for a Pessary with other Ingredients.

ACHOR.

The *Achor* is a small Ulcer in the Skin of the Head, which seems to be the Effect of a salt and nitrous Phlegm. It discharges

charges an Ichor, not quite so thin as Water, nor yet so thick as Honey, which last is like what issues from the *κίχτοι* (or Favi). For these swell and break into many Holes, which shed a Honey-like Humour; they also form themselves into small Tumours not so large as those of the *Achor*. *Gal. de Tumoribus*.

Among the Diseases which affect the Skin of the Head may be reckoned the *Achor*, which is a Sort of preternatural Tumour that takes its Name from some signal Property belonging to it. For it is perforated with very small Holes, which contain a thin Humour, moderately viscous. Much resembling another Disease of the Skin, called *κνέρον* (*Favus*, Honey-comb) in which the Perforations are larger, and discharge a Humour much like Honey (that distills from the *Favi*, or Combs). *Gal. de Comp. Phar.*

What they call an *Achor* possesses the Skin of the Head, and is full of small Perforations which discharge a thin and moderately viscous Ichor. Another Distemper, much like this, is what they name the *κνέρον* (*Favus*.) This has large Perforations, which contain a Humour resembling Honey. *Oribasius ad Eunap. L. 4. c. 11.*

An *Achor* is an external Sore of the Head, full of little Perforations, which discharge a Humour much like Ichor, whence the Disease, or Sore itself, is called an *Achor*. *Trallianus, L. 1. c. 8.*

Now you must know that the *Cerion* is a Disease like an *Achor*, only greater. For the Mouths of the Perforations, by which the Humour issues forth, resemble those of the Honey-comb. Wherefore the Disease was named by the Antients *Cerion*; but in *Achors* these Mouths, or Outlets of the Humours, are invisible. *Trallian. Lib. 1. Cap. 2.*

Among Diseases of the Head which break out in the Skin, there is one which is called an *Achor*, where the Skin is full of very small Perforations, which discharge a viscid Ichor. Alike to this in Kind is what they call a *Cerion*, in which the Perforations are large, and contain a Honey-like Humour, resembling that in the Honey-combs of Bees. *Æginet. Lib. 3. Cap. 4.*

What they call an *Achor* has its Seat in the Skin of the Head, which it perforates with many small Holes, through which it discharges a moderately viscid Ichor. The *Cerion* is a Disease, much of the same Nature, but having larger Perforations, which contain a Humour resembling Honey, and called *Meliceris*. *Altius, Lib. 6. Cap. 68.*

Achor is an Ulcer upon the hairy Scalp perforated with a great many little Holes, which contain a Humour somewhat viscid.

It differs from the *Favus* and *Tinea*, only in Degree of Virulency, the Cause of all three being a corrosive Salt Humour fretting the cutaneous Glands.

It is called *Favus*, when the Holes are large, and like those of a Honey-comb; and *Tinea*, from the Similitude of the Holes to those made in Cloaths by Moths. But generally the *Tinea* is taken for a dry Scab on the hairy Scalp, with filthy thick Scales, and a stinking Smell, to which Children are very subject, whose Faces it often also affects, in which Case it is called *Crusta Lactea*, and is often mild and inconsiderable, but sometimes malignant and dangerous. There is also a worse Species of the *Tinea*, or Scabbed-Head, covering the whole Scalp with a thick cineritious Scurf, very troublesome from its violent Itching, and fetid Smell, and is not unfrequently very difficult to cure. The Patients for the most Part are pale, and discoloured. This Disease appears more frequently in Infants, than Adults, and is caused generally by a bad Diet, either of the Nurse, or the Child, from which a corrupt Blood is generated, which produces these Ulcers. But sometimes they invade grown Persons, and resemble a Sort of Leprosy, when they are very difficultly cured. Oftentimes also in Persons afflicted with the Venereal Disease, not only the hairy Part of the Head, but that without Hair, and especially the Forehead, is affected with dry Scales, and scabby Ulcers of this Kind, which they call the *Pocky Scab*. Even the Venereal Gummata, and Tophs of the Head, as they often ulcerate, may in some Measure be numbered amongst these: But altho' the Ulcers before-mentioned are perhaps different from one another, yet as the Method of Cure is the same, I shall not here separate them, but will treat of them together, and shew how they are to be cured. Therefore, when they are very mild, it is convenient to evacuate the noxious Humours, by repeated Purges with Mercurials, especially *Mercurius dulcis*, and correcting the Blood in the Intervals, if the Patient's Age will admit of it, with a Decoction of the Woods, and with alterative Powders, Pills, and Essences. If the Disorder is in sucking Children, they may take the Powders, and their Nurses also the Diaphoretic Powders, Pills, Decoctions, and Essences. The Scab, or Scurf, may be anointed with Cream mixed with a little prepared Cerus, oftentimes in a Day; or with Oil of Eggs only, or with a little Oil of Wax added to it; or with Ointment of Elicampane, *Diapompholygos*, Cerus, or any such Preparation of Lead; observing at the same Time a proper Diet, and keeping the Body warm. By this Method, not only the mild Sort of these Ulcers heal, but even those which are somewhat more stubborn, especially if Calomel be given cautiously, and in a small Quantity, as an

Alterative, or even if crude Mercury be mixed with the Ointments of Lead.

In the more obstinate Sort of these Ulcers, especially if the Patient will not take Mercurial Medicines, a Cure will not be effected, unless the Hairs are first pulled up, to which these Ulcers are strongly annexed, which is done either by Degrees, or all at once, with a Plaister made of common Pitch, melted over a slow Fire, and spread upon thick Cloth, or Leather; and, the Hair being first cut off close down to the Scab, the Whole must be covered with it, whilst warm, that it may stick. The Head must afterwards be kept very warm. The Plaister must remain on the Part, twelve or twenty-four Hours, and then must be stript off at once by Force, together with the Scabs and Roots of the Hair; but this is not done without giving considerable Pain, and making the Head bleed. After the Blood is wiped off with Rags, the Head must be bathed with Oil of Bricks warm, with a little Oil of Wax added to it; and a Plaister of Frogspawn, impregnated with a little Camphire, or one made of Rosin, is to be applied over it, and must be renewed daily, till the affected Part appears clean. Then it must be anointed with Oil of Eggs, or Essence of Amber, till it is intirely healed. The internal Medicines, with proper Diet mentioned before, must be continued; among which, Antimony, either by itself, or mixed with a small Quantity of Flower of Brimstone, is of excellent Service, and forcibly expels the offensive Matter. But, in the Beginning, Ointments prepared of Mercury, or Sulphur, must be strictly forbore; for it has been often observed, that they repel the corrupt Matter, and thereby hazard the Patient's Life, which they would not do, were proper Internals given sufficiently before.

In scabby Ulcers in the Face of Children, which are commonly called *Crusta Lactea*, or *Achres*, the internal Remedies, before commended, must be given to their Nurses, as well Purgatives as Correctors. But, in these Infants, the noxious Humours must be evacuated by often Purging, and in the Intervals with Powders of Diaphoretic Antimony, Crabs-Claws, Crude Antimony, and Flower of Brimstone. When these have been used some Time, let a Liniment be made of Cream with Chalk or Cerus, with which let the Scabs be anointed often in a Day; or in its Stead, with Oil of Tartar per Deliquium; or Oil of Eggs, with a little Oil of Bricks. But Ointments made of Mercury, or Sulphur, as is just now said, do much Hurt in weak Bodies. But if Remedies of this Kind have been unskillfully made Use of too soon, as is very often the Case, and the Children are thereby made ill, then both the Nurse and Child must take internal Sudorifics, Powders, Essences, and Potions, with warm Drink, and a warm Regimen, and the Use of them must be continued, till the morbid Matter is thrown out, and the Child is well again. *Heister. Chirurg. L. 5. C. 10.*

The Danger, attending repellent Applications in these Ulcers, is seen in the following Observation from *Turner*.

OBSERVATION.

I was sent for, says he, in much Haste, to a Gentleman's Child, labouring under a convulsive Fit, and perceiving a strong Smell from the Head, whilst I tried to bleed him, and was about to cup him for want of getting away any Blood thereby, I asked the Servant whether the Child had any Breakings-out, or sore Head: The Nurse told me it had a violent running Head two Days before, but it was much slackened by an Application they had lately put on, and in a fair Way to do well: I after enquired for the Medicine, and found it to be no other than Nutritum; from the Coldness thereof, and repulsive Nature, the Matter was drove inwards upon the Brain, exciting this cruel and deadly Convulsion, in Opposition to all Endeavours by Bleeding, Blistering, Cupping, with Anti-spasmodic and Anti-epileptic Remedies.

The following Plaister is reckoned almost infallible in this Disorder.

Take of Pitch one Pound,
Verdigrease in fine Powder two Drams,
Flowers of Brimstone an Ounce,
Hogs-Lard half an Ounce,

Boil all gently over the Fire for a Quarter of an Hour, constantly stirring them.

This, after the Hair is cut off very close, must be applied in the same Manner as the Pitch Plaister, before-mentioned, and torn off, and often renewed again, till the Hair is pulled up by the Roots.

ACHORISTOS. *Ἀχόριστος*, from a Negative, and *χώρα*, Separate, Inseparable, and is understood of Accidents, Symptoms, or Signs, which are inseparable from particular Things. Thus a pungent Pain in the Side, is an inseparable Symptom of a Pleurisy. *Cassellus*.

ACHRAS. A wild Pear-Tree. The Fruit is more sour, astringent, and drying than the other Pears. Theophrastus calls it *ἄχρη*. *Gerrardus*.

ACHREION. Ἀχρεῖον, from α Negative, and χρεῖα, *Usefulness. Useless.* It is applied by Hippocrates to the Limbs, which, through Weakness, are become useless. *Foetus.*

ACHROI. Ἀχροί, from α Negative, and χροα, *Colour. Pale.* In this Sense it is used by Hippocrates (*de Victus Ratione in Acutis*). Galen explains it pale through a Deficiency of Blood. And Hippocrates (*Epidem. L. 6. Sect. 6. Aph. 19.*) mentions it in this Signification, as a bad Circumstance, when consequent to a considerable Hæmorrhage of the Nose.

ACHROMOS. Calvus; the first Translator of Hippocrates into Latin, has made a very great Mistake, by making *Achromos* a Woman, who was possessed of an infallible Secret for a Dysentery; and this probably led Tiraquellus, the great Civilian, into the same Error. The Passage of Hippocrates in Question is thus in the seventh Book of *Epidemics*, πρὸς τὴν ἀχρωμὸν δυσεντερῆς ἀκρό. The Sense of this is very obvious, *shameless (excessive) Whoring, is a Remedy for a Dysentery.* A very extraordinary Prescription, and one, I believe, very seldom made Use of in this Intention. However, Hippocrates is not the only one that mentions it. *Ætius* says, that *Veneral Commerce dries up Chronical Dysenteries*; and *Paulus* repeats this almost in the same Words. From these some amongst the Moderns seem to have transcribed it.

A Want of Attention to what has been said by later Authors; with respect to this Method of Cure, and the seeming Extravagance of the Remedy, probably made Calvus look out for another Sense.

ACHROUS. Ἀχρὺς, from α Negative, and χροα, *Colour.* In the Opinion of *Salmasius*, it signifies *White*, and is applied to Flowers of that Colour by *Theophrastus*.

ACHY. Ἀχῦ. A Species of Cassia growing in Arabia, called also (δασυτῆς.) *Daphnites.* *Gorræus.*

ACHYRON. Ἀχρόν. This properly signifies *Bran*, or *Chaff*, or *Straw*. Thus in pituitous Disorders of the Uterus, Hippocrates (*de Natura Muliebri*) advises a Fumigation of moist Bran (ἀχρὺς ὕδρεα) of Barley; the Interpreters translate it *Straw*. The same Author directs it frequently either as an Ingredient in Fumigations, or Cataplasms, in uterine Disorders, both in his Treatise quoted above, and that *de Morbis Mulierum*, L. 2. By comparing the Passages together, it seems more probable he means Bran, than Straw or Chaff.

Achyron also signifies a Straw, Hair, or any small Thing that sticks upon a Wall. Thus Hippocrates (*Prænot.*) mentioning the fatal Symptoms which occur in acute Fevers, Inflammations of the Lungs, a Phrenitis, or Cephalalgia, amongst others, specifies the picking ἀχρὺς from the Wall, which *Celsus* interprets, any small Thing that sticks in it (*figula minuta eminent*). This is a Symptom which occurs frequently, and I believe, Physicians generally find this Prediction of Hippocrates too true.

ACIA. This is mentioned by *Celsus*, L. 5. C. 26. and has much puzzled the Learned, who are divided in their Opinions about it, some taking it for a Needle, others for the Thread. *Johannes Rhodius* has wrote a whole Volume about it. But the Account *Fabricius Aquapendente* gives of it seems most reasonable.

Celsus having just before mentioned the Suture, and Fibula, says, *utraq; optima est ex Acia molli, non nimis torta, quo mitius Corpori insideat.*

Hence *Aquapendente* interprets *Acia* a Kind of Thread. *Filum*, he says, comprehends the *Linum*, and *Acia*. *Linum* is a single thin Thread as it is spun. *Acia* is a *Filum* or Thread composed of a double *Linum*; and twisted. The *Italians* call it *Azza*, or *Refs*.

ACICYS. Ἀκικύς, from α Negative, and κίς, *Strength, Vigour.* It signifies weak, infirm, or faint, and in this Sense it is used by Hippocrates (*de Morbis*, L. 4.)

ACIDA. Acids. All Things, that affect the Organs of Taste with a pungent Sourness, are called *Acids*. But the Chymists call all Substances *Acids*, that make an Effervescence with an *Alkali*. However, this does not seem to be a true Characteristic of *Acids*, because some *Acids* will make an Effervescence, upon being mixed with *Acids* of a different Kind; and alkaline Substances will do the same with *Alcalies*; and *Acids* with Bodies that are neither alkaline nor acid, but neutral.

Another Mark of *Acids* is, that they change the Colour of the Juices of the Heliotropium, Roses, and Violets, red, whereas animal *Alcalies* turn them green. I mention animal *Alcalies*, because others will not always do it.

A few Years ago, it was the Fashion in Physick, to explain the Nature and Causes of Diseases, by the Doctrine of *Alcalies* and *Acids*, and from this to deduce Methods of Cure; but this, like all other Systems, dropped to the Ground, when Experience had made it appear false and insignificant, without doing much more Service to Physic, than demolishing the Galenical Doctrine of the four Elements, four Qualities, four Degrees, and four Humours, which had been the more fatal, as it had obtained Credit for a great many Centuries, and had prevented farther Researches into the Nature of Diseases and Remedies, and consequently had retarded the Improvement of Physic.

With respect to *Acids*, if I mistake not, they have another very obvious Characteristic, which will better discover them in Bodies, than either Effervescence with *Alcalies*, or producing a red Colour when mixed with the Juice of the Heliotropium, Roses, or Violets. What I mean is, that all Bodies whatever, that will flame, contain either a manifest or a latent *Acid*, and that *Acids* are the only Bodies in Nature, that are convertible into that Species of Fire, which we call Flame. *Boerhaave* has, by a great Number of Experiments, endeavoured to prove Oil the Pabulum or Food of Fire, and I know of no Oil that has not an *Acid* in it, insomuch that I believe an *Acid* essential to the Composition of Oil. Vegetable Oils contain an *Acid*, in some manifest to the Taste, and from most others it may be separated by Distillation. 'Tis this *Acid* that makes Oils so readily mix with alkaline Salts, which are by this Junction neutralized, and converted into Soap. Hence also Oils are enabled, in a certain Degree of Heat, to dissolve some Metals. And 'tis upon Account of this *Acid*, that Oils preserve animal and vegetable Substances immersed in them from Putrefaction.

Alcohol, or pure Spirit of Wine, is a vegetable Oil subtilized by Fermentation, and probably for the Reasons given under the Article ACETUM, it contains an *Acid*, and for that Reason readily flames.

Vegetables flame so long as a black Oil remains in them, but no longer; and 'tis manifest that this black Oil contains an *Acid*, both by the Smell and Effects. Thus the Fumes of Charcoal have an acid or sulphureous Smell, and are fatal to Animals that are confined with it in a close Room. Bees-Wax is an Oil of the vegetable Kind, containing an *Acid*, and therefore it flames.

Mineral Oils in general contain a manifest *Acid*, as the Oil of Coal, Petroleum, Naphtha, and all Sorts of Bitumens.

In animal Oils, the *Acid* is not so manifest, but seems disguised by a large Portion of volatile alkaline Salts. But we may conclude an *Acid* enters its Composition; first, because after it is cleared from the membranous Cells which contain it, and the Blood-vessels which enter it, tho' kept never so long, it does not putrefy like the other Parts of Animals, nor does it afford a Nidus for the Eggs of Insects, and breed Maggots. But, if it has once been deprived of a Part of its alkaline Salts by boiling, it will keep for Ages unaltered and untainted in the hottest Seasons, of which Tallow Candles may serve as an obvious Instance. Now *Acids* are the grand Preservatives against Putrefaction, and known Destroyers of those Kinds of Insects that breed in animal Bodies.

Secondly, because animal Oils do not only preserve themselves, but also all other animal and vegetable Substances immersed in them from Putrefaction; and on this depends the Art of Potting various Kinds of Meat.

Thirdly, like vegetable Oils, they readily mix with alkaline Salts, which they neutralize, as is evident in making some Kinds of Soap.

Pure *Acids* are not easily inflammable by common Means, because perhaps of their Solidity, and strong Cohesion. But when *Acids* are divided into exceeding fine Particles dispersed in the Interstices of other Bodies, and by Means of some other Substance set on Fire, they burst into a lucid Flame, and explode with the utmost Violence.

I remember some Years ago, Mr. Lemon, a wholesale Apothecary, was cutting a Retort, which had some Days before been used in making sweet Spirit of Nitre, with a hot Ring of Iron, as is the common Way. None of the Spirit remained in the Retort, except a small Portion that adhered to the Sides, not considerable enough to be visible; but this Quantity, small as it was, took Fire, and burst the Vessel, with a Noise not less than that of a Cannon, and a Force that drove the Fragments of the Retort out of the Cupola of the Laboratory, to a considerable Distance.

Other Instances of the prodigious Explosions of *Acids* set on Fire, we meet with in *Hoffman's* Experiments with fuming Spirit of Nitre, and aromatic Oils. This great Philosopher and Chymist mixed, in a common Wine-glass, a Dram of genuine Oil of Cloves, with the same Quantity of the fuming Spirit of Nitre; the Mixture instantly burst out into a very lucid Flame, with an excessive Ebullition.

The same fuming Spirit, mix'd with Oil of Sassafras, Oil of Turpentine, or Oil of Caraway, in like Manner takes Flame; but it is not so vehement, as when mixed with Oil of Cloves.

No Flame, we are acquainted with, is so fierce and penetrating as that of Lightning. And this, it should seem, can be produced by nothing but the aerial *Acid* set on Fire by some Means not so easy to be determined. But it may give us some Light in this Affair to consider, that, during very hot Weather, the Air abounds with vegetable, animal, and perhaps mineral Oils; and this is so remarkable with respect to vegetable aromatic Oils, in hot Climates, that they are perceivable by the Smell at a prodigious Distance from the Place where the Vegetables they exhale from grow.

It seems therefore possible, that these Oils, when confined in the Clouds together with the *Acid* of the Air, may, by an Effervescence,

vescence, like that of the fuming Spirit of Nitre with Oil of Cloves, be kindled into Flame; or the extremely volatile Oils may at least serve as a Medium to set the aerial *Acid* on Fire, which, when pure and unmix'd, is not, that we know of, inflammable.

Thunder and Lightning are nearly imitated by Gun-powder, and this receives all its Force and explosive Power from the *Acid* of Nitre, the principal Ingredient in its Composition; for the Powder of Charcoal performs the Office of Tinder, and catches the Fire, which is instantly communicated to Sulphur the third Ingredient, and the Sulphur lights the acid Spirit of Nitre into a Flame.

It is observable that the *Acid* of Nitre is the very same with that of the Air which causes Lightning, for the alkaline Earth, which is the Basis of Nitre, is neutralized by the *Acid* of the Air, as has been mentioned under the Article *ACETUM*, and will be farther explained under the Article *NITRUM*.

It is a manifest Error to explain the Explosion of Gun-powder by the Rarefaction of the Air contained in it, for I have yet met with no Experiment which convinces me, that Air is capable of being rarefied by any Degree of artificial Fire, so as to take up above three Times the Space it does naturally in a warm Summer's Day. In this Case the Instance of the Fire Engine will not make against me, for the Weight there is raised by the Vapour of Water, which, though it will not flame, has an expansive Force greater than even Gun-powder itself, upon the Application of Fire in a certain Degree.

Upon the Whole, I consider Wood, and all other Bodies that flame, as a Sort of natural Gun-powder, perpetually exploding, but with a less Degree of Violence, because the *Acid*, disseminated in every Particle of the inflammable Matter, is in a very small Proportion to the other Ingredients.

It may not be amiss, in this Place, to take some Notice of an Error, which I apprehend the Patrons of the Mechanic Philosophy have fell into, with Respect to the Solution of hard mineral Bodies by acid Spirits. They tell us, that the Solution is performed by the Attraction of the acid Salts of the Menstruum to the dissolving Body, and the Repercussion of the elastic Particles of the Salts, and that by these Means the Surfaces are worn off, till the Body is intirely dissolved. This Attraction betwixt the Particles of acid Salts and metalline Bodies may possibly prevail, but, if it was the Cause of Solution, it would be retarded by Heat, which universally impairs the Attraction of the Particles of the Bodies to each other, whereas Heat always promotes the Solution. It seems therefore more reasonable to believe the Solution of metalline Bodies performed in this Manner: When a metalline Body is immersed in an acid Menstruum, the Fluid enters the Pores thereof, and carries with it a Part of the acid Salts, which are very hard and pointed. Now as the Heat of the Atmosphere is never exactly the same for many Moments together, but perpetually altering, the Size of the acid Particles must alter in Proportion to the Heat, for all Bodies in Nature expand by Heat, and contract by Cold. And by this Expansion I apprehend the Cohesion betwixt the metalline Particles is dissolved by Degrees, and the Metal, thus divided, becomes invisible as it swims in the Menstruum. But if an artificial Fire is applied, and the Heat increased, the Solution goes on with more Effect, and is sooner performed, as the expansive Force of the acid Particles is augmented.

Silver is dissolved by Aqua Fortis, the proper Solvent of Gold is the acid Spirit of common Salt. It seems as if Gold remains untouched in Aqua Fortis, because the acid Particles in this Spirit are not small enough to enter the Pores of Gold. And Silver is not affected by Aqua Regia, because the acid Particles of common Salt are so extremely small, as not to be capable of an Expansion by any Degree of Heat we are acquainted with, sufficient to dissolve the Union, and destroy the Cohesion of the Particles of Silver, which has Pores much larger than those of Gold.

I make no Doubt, but *Acids* are of some great Use in the Oeconomy of the World, because they are so universal. In the Bowels of the Earth we meet with them in almost every Mine, and Mineral; but particularly in those prodigious Rocks of Salt, which are found in almost every Country, and which the Industry of a great many Ages has not been able to exhaust. Such are those in the famous Salt Mines in Poland, and our own in Cheshire, where vast Quantities are got every Year, and exported. Not to mention the Quantities of *Acids* that are hourly discharged from the Bowels of the Earth, in the Salt that may be found by a nice Examination in the Waters of every Spring, the freshest not excepted.

In the Air the *Acid* is universal, and that in every Part of it, insomuch that it seems the very Principle in it, which is so necessary to animal and vegetable Life, that neither can subsist without it. And I am inclined to believe, that, if any Part of Air is deprived of its *Acid*, it loses at the same Time its Elasticity. It is remarkable that the *Acid* abounds most in the Air, when the Winds blow from the East and North, and when the Weather is serene. This Hoffman informs us from the Observations of those who are concerned in Nitre Works,

who remark, that, principally during these Winds, their alkaline Earth is impregnated with an *Acid*. Now as these Winds are remarkably cold, and as acid Spirits, that of Nitre particularly, increase the Coldness of Ice to a prodigious Degree, I think there is Reason to believe, that the aerial *Acid* is more concerned in the Production of Cold in the Air, than is generally imagined. The Analogy betwixt *Acids* and Cold, and betwixt *Alcalies* and Heat, is very remarkable. Heat promotes the Putrefaction of animal Bodies, or, in other Words, destroys the Cohesion of the Particles of which they are composed, and then the Oils, Salt, and Water fly off, as they are of themselves volatile, as soon as they can break their Union with the inert Earth that detained them. Alkaline Salts in the same Manner promote Putrefaction in animal Substances, and the Dissolution of all Bodies whatever, and are therefore usefully employed in extracting Tinctures from hard Bodies that will not yield it without their Assistance. Alkaline Salts also, as the Lapis Infernalis, Salt of Hartshorn, and all others in a greater or a less Degree, as they are stronger or weaker, induce the very same Kind of Escar on the Part of living Animals, as actual Fire will do if applied to them.

On the contrary, *Acids* preserve animal Substances from Putrefaction, that is, preserve the Cohesion of their component Parts, and prevent their Dissolution. Cold does the very same.

The stronger *Acids*, applied to the Flesh of living Animals, cause a Gangrene of the Parts they touch, but of a Nature very different from that produced by Fire and alkaline Salts. Excessive Cold brings on a Gangrene much of the same Nature. We are told by People that have travelled into very cold Climates, that the Coldness of a Glass has sometimes taken the Skin off their Lips, as they have been drinking Brandy out of it. And this is exactly the Effect of a strong *Acid*.

Physicians have observed, that the South-Winds favour pestilential Constitutions of the Air, especially if the Season happens at the same Time to be moist and rainy; and that the Malignity of pestilential Distempers is abated by the Winds which blow from the North, or North-East, and cool serene Weather. So that there is Reason to believe, in one Case, that the Dissolution of the Juices, usual in pestilential Distempers, is promoted by Heat, and the Contagion propagated by an alkaline Putrefaction: And in the other, that this Dissolution is restrained by Cold, and the alkaline Contagion destroyed by the aerial *Acid*.

Upon reflecting on the great Similitude betwixt the Effects of *Alcalies* and Heat, and betwixt the Operation of *Acids* and that of Cold, I have been often inclinable to think, that Cold is itself, as well as Fire or Heat, a Body, and capable of being fixed and detained in other Bodies; and that, as Heat is the Principle which, uniting with Earth and Oil, constitutes alkaline Salts, so Cold, concentrated, and joined to vegetable or mineral Bodies, is the very Essence of those Salts which we call *Acid*. And farther, that the Effervescence, which ensues upon the Mixture of *Alcalies* and *Acids*, happens for the very same Reasons that an Effervescence much like it is raised, upon immersing a red-hot Coal, or Iron, in cold Water.

That Cold is a Body there are some other Reasons to believe. Thus, Cold contracts every Part of Matter we are acquainted with in the Universe; that is, it makes the ultimate Particles of which Bodies are formed approach nearer each other, and lessens the Dimensions of the Compound. Now I cannot comprehend, how Cold, if it was not Matter itself, could act in this Manner upon Matter. These Things I recommend to the Consideration of Gentlemen who are entertained with Philosophical Researches, and shall only make this farther Observation, that in case Alkali and Fire mean the same Thing, and *Acid* is the same as Cold, the chymical Philosophers, in accounting for all the grand Operations in Nature, by the Action of *Alcalies* and *Acids*, were not much mistaken, though they do not seem to comprehend the Reason why they were in the Right.

I have hinted before, that *Acids* are the great Preservatives against Putrefaction in the Air, and we shall find them not less useful in this Respect in the Sea. For that vast Body of Water, which we call the Sea, would putrefy in hot Climates particularly, and hot Weather, and consequently no Animals could either live in it, or near it. This great Inconvenience is prevented by the *Acid* of the Salt which is dissolved in Sea-water. Now, as Putrefaction is promoted by Heat, it should seem that a greater Quantity of Salt is necessary to prevent Putrefaction in hot Climates than in Cold. And accordingly, it has been discovered by an Experiment made by a Friend of Mr. Boyle's at his Request, that the Sea-Water increases in Saltiness the nearer it approaches the Line. And other Experiments make it appear, that a Pint of Sea-water in the Mediterranean contains an Ounce of Salt, but the same Quantity of Water in the Baltic only half an Ounce.

The medicinal Virtues of *Acids* are very great, when alkaline Food, taken in too large Quantities for the Action of the Stomach to digest, putrefy in the Stomach and Intestines. Or when any extravasated Juices in the Body verge towards an alkaline Putrefaction, Or in those Sorts of Fevers where the

the Blood tends to Dissolution. These Virtues will be more particularly specified under the respective Articles, where they are indicated. See that Part of the Article *ALCALI*, where the Disorders caused by an Alcalescence of the Juices are treated of.

But I must not omit to mention, that the acid Water which rises first in the Distillation of Turpentine, well separated from the Oil, is the most admirable vegetable *Acid* known, in the Opinion of Boerhaave, and I think it is universally allowed to be endued with great medicinal Virtues. Floyer, in his Treatise on an Asthma, recommends it as an extraordinary Diuretic.

Some Notice was taken of the Effects of *Acids* upon Blood, under the Article *ACETUM*. I shall only insert here what Boerhaave observes upon this Subject.

The *Acids* of Moselle and Rhenish Wine, Vinegar, and distilled Vinegar, dilute the Blood, scarce alter its Colour, and in some Measure prevent its Coagulating. The *Acid* of Nitre instantly coagulates it, and turns its Colour bluish; the *Acid* of Sea-salt likewise soon coagulates it, and changes it of a grey Colour, inclinable to Black. The acid Spirits of Vitriol and Sulphur also bring it to a firm Mass, which is generally whitish.

Hence appears the fatal Error of those Physicians, who unjustly condemn *Acids*, under the false Notion of their coagulating the Blood, by an Argument wholly derived from Milk; whilst Hippocrates from a closer Observation of Nature judged, that Vinegar was proper in inflammatory Distempers, though the Blood is thence rendered more dense. And we cannot safely pronounce concerning the Effects of *Acids* upon the Blood, unless it be first distinctly explained what Kind of *Acid* is understood: The Use of mineral *Acids* is dangerous, but of vegetable *Acids* more wholesome; and it frequently happens, that the Things, which really coagulate the Blood, are supposed to dissolve it. *Boerhaave's Chymistry*.

The following Observations upon *Acids* made by the last-quoted Author, are both entertaining and instructive. But he seems to err when he says, Vegetables receive all their *Acids* from the Earth, whereas it is highly probable they imbibe some from the Air.

Count Marfilli's Observation on Sea-plants only proves, that in these the Earth is not sufficiently united with the alkaline Principle, to render the Salt fixed, and that they contain a less Quantity of *Acid* than some Plants which fix their Root in the Earth.

The *Acids* of Vegetables are either native, or produced by the Help of Fermentation. Native vegetable *Acids* seem to owe their Origin intirely to the Juices which the Plants draw out of the Earth which nourishes them; and hence, perhaps, all these may be looked upon as belonging originally to the fossile Kingdom, especially as Plants which grow in the Sea, and have not their Roots inserted into the Earth at its Bottom, consist purely of alcalescent Parts, and in Distillation yield an oily, volatile Alkali, as the illustrious Count Marfilli, in his Writings upon this Subject, informs us, he long ago observed. In some Vegetables the native *Acids* discover themselves evidently; as in Sorrel, the Trifolium Acetosum, and the Juice of all Fruits, whether the pulposus or Summer-fruits, especially whilst unripe, for, when concocted by the Heat of the Sun, they grow more mild. The Sap also of all Vegetables which rises in the Spring is almost as acid as Vinegar. Many Woods also and Aromatics contain a true *Acid*, which however is not so manifest. In Guaiacum, Sassafras, Cinnamon, and a vast many more of the like Kind, who would ever have suspected an *Acid*, if it had not been manifested by Distillation? Who would believe that the most noble Balsams contained such an *Acid*, as Turpentine yields easily and in great Quantities by Distillation? But as *Acids* can scarcely be obtained pure and without Mixture, it is exceedingly difficult to give a distinct Account of their proper Actions: The Virtue of some of them, however, upon certain Bodies, is evident; thus we see the fresh Juices of Oranges, Citrons, and Lemons dissolve Lead, Tin, Copper, and Iron, and is capable of strongly calcining them, like fossile *Acids*. The acid Salts, however, are formed into solid Globules, in a different Manner from the other; for their most acid liquid Juices being pressed out, filtered, inspissated, and then set to rest in a cool Place, shoot into saline Globules, not unlike Tartar, and containing a true vegetable *Acid*.

But Fermentation seems more and more to exalt the latent *Acid* of Vegetables. For the Juices of Vegetables, that are exceeding ripe and sweet, appear to have scarcely any Thing of Acidity in them, as we see evidently in the expressed Juice of Grapes. Who can perceive any Thing like an *Acid* in Cassia, Manna, Honey, and Sugar; and yet, when these are rightly fermented, and set a-working, the *Acid* presently appears, but especially when the Wine begins to grow finer and more subtile. In ripe, mealy Corn, is there the least Indication of an *Acid*? And yet, when this has fermented but a very little while, it discovers an Acidity. As these *Acids*, now, thus produced, are of a something different and more subtile Nature than the native ones; hence, to distinguish them, we may be allowed, for the future, to call them vinous *Acids*. These vinous *Acids* then

are of two Sorts; for either they are dispersed through the Wine, in Form of liquid *Acids*; or else in Time collect themselves together in the Wine, and fix themselves to the Surface of the Vessel, in the solid Form of Tartar. And these fermented vinous *Acids* have pretty nearly the same Virtues as the preceding native ones.

But the *Acids* of Vegetables, produced by a second Fermentation, I will call by the Name of Acetose. For if any known Wines are, by an Admixture of austere, acid, crude Juices, made to undergo again a proper acetose Fermentation, they will be converted into Vinegars, will consume their own Tartar, become much more acid, and will acquire a stronger and more durable Acid, which will remain even in Distillation: Hence in Vinegars there is obtained a pure, active Acid, and then they are called pure, distilled, acetose *Acids*. These last are of such incredible Service and Efficacy in Chymistry, that hence all other Menstruums likewise have been called Aceta by the Chymists.

But among *Acids* we must take Notice likewise of fermenting *Acids*; by which we mean, vegetable Juices, that are in the very Act of Fermentation, and thus in a Kind of middle State between that which is natural to them, and that which they obtain when the Fermentation is completed; for, during this Time, the most elastic Part of the fermenting Liquid acquires such a Power, as is not to be equalled by any Thing I know of in all Nature. For if this (Sylvestris) savage, incoercible, explosive, acid Spirit, rising from a vast Quantity of fermenting Vegetables, should pass through a very small Vent-hole into the Nostrils of the strongest Man, it would strike him dead in an Instant. If it does not act with all its Force, it causes a sudden Apoplexy; if less powerfully still, a Loss of the Senses, with a Paraplegia; if very lightly, only a Vertigo. The Truth of all this has been too certainly evinced by melancholy Instances. Hence we come to have a more perfect Idea of the more immediate Cause of Drunkenness, and the Tremors upon the Nerves that are consequent to it. And hence we see the Occasion of that surprizing Phenomenon mentioned by the illustrious Cornaro, in his noble Treatise, wrote in the Praise of Sobriety, where he tells us, as he grew in Years, he was annually, just before the Time of Vintage, troubled with a Languor, and Lowness of Spirits, which would not give Way to any Medicine, or Regimen, but increased so as to become extreme, till, upon drinking new Must, he recruited his exhausted Spirits, and re-assumed his former Vigour: This then he continued to enjoy till the Wine of that Year began to grow old, and then relapsed into his usual Debility, and was forced to wait for a fresh Recruit of new Wine, to set him to rights again. From all this then we evidently learn, what an incredible Effect this fermenting Acid has upon the Bodies of Animals, either for their Detriment, or their Advantage. Whence does it happen that the Cholera Morbus in so short a Time becomes so fatal? Certainly from Must, and ripe Summer-fruits, actually fermenting in the Stomach, and smaller Guts, and, by the Explosion of their Spirits, contracting the Muscles of these Parts into Spasms, that often prove mortal. Of this there is a remarkable Instance in the Philosophical Transactions, where the Anatomist, St. Andre, gives a very accurate Account of the Body of a Man that fell into a Cholera, upon drinking a large Quantity of bottled Ale, of which he died, in the Manner there described. As by these Accounts the singular Efficacy of such an *Acid* evidently appears, so likewise it seems exceeding probable, that those Spirits, considered as a Menstruum, produce often upon other Bodies very surprizing Effects. And I have sometimes doubted, whether this wonderful Spirit is not fixed in Tartar, and afterwards, when by the Action of the Fire, in the Distillation of this Salt, it is set at Liberty, does not produce that elastic Vapour which the Chymists have always observed to be so prodigiously elastic as to burst to Pieces all their Glasses, let them be ever so large.

It is however certain, that Bodies which we intend to dissolve, if mixed with Liquors in the very Act of Fermentation, will be dissolved by them in a very different Manner from what they would have been, if put into the very same Liquors, when not in Fermentation. A manifest Instance of this we see in green Herbs, when thrown into fermenting Must, or Wort; for hence we have a Liquor, in which all their Virtues seem to be most equally united into one and the same Liquid, and afterwards to act with a joint Efficacy. And thus also the different Ingredients in the Theriaca, or Venice Treacle, when they are mixed together with Honey, are reduced into one homogeneous Mass, and conspire together in the same Operation. And hence appears the Folly of those, who in this, and the like Compositions, substitute Diacodium instead of Honey, thereby spoiling the Medicine.

But pure, thin, acetose *Acids*, are procured, pretty much in their natural Form, from Vegetables exposed to the Fire: For if you take a Stick of Wood, a green one in particular, and lay it upon a clear Fire, in such a Manner, that both the Ends shall lie out, then the Fire, acting upon the middle Part of the Wood, will fuse the Humours contained therein, and expel them at the Extremities, in the Form of Water, with a Hisling and Froth. This Liquor, upon Examination, appears to be a pure

pure *Acid*, has all the Properties of *Acids*, and the dissolving Qualities common to them. Hence, we learn, that the Smoke of Wood, that which is green particularly, gives the Eyes Pain, by the acid *Acid* which it disperses all about. This, likewise, when it penetrates into Flesh or Fish, that are hung in Smoke, tinges them with a red Colour, and, by its Acidity, prevents their growing putrid, or rancid. And this *Acid* is exceedingly like those that exist naturally in most Trees.

But again, there are discovered other very singular *Acids*, that are in some Measure of a balsamic and oily Nature, which are drawn from Vegetables by Fire in a close Vessel, both *per ascensum* and *descensum*. Thus the Wood of Guaiacum, Juniper, Oak, and a great many others, if reduced to dry Shavings, and carefully distilled in a Retort, yield a limpid, reddish Liquor, which is very acid, somewhat oily, and has a good deal of the Smell of a Herring dried in the Smoke. And the Liquid thus prepared is strongly acid, and may be rendered stronger by Depuration and Rectification, and then the solvent Virtue of this Menstruum is perfectly singular. In the Human Body, it produces wonderful Effects, by attenuating, preserving, stimulating, and resisting Putrefaction, and carrying off the noxious Matter by Sweat and Urine. If in these Menstruums, therefore, the Virtues of medicinal Plants are dissolved, the Solutions become exceedingly efficacious, as they act by their very subtle, penetrating, singular *Acid*, and exalt the Qualities of the Bodies dissolved in them. Of all these vegetable *Acids*, therefore, it is true, that they are capable of intimately dissolving many animal, vegetable, fossile, and metalline Substances: By Digestion and Coction, they dissolve the Horns, Hoofs, Bones, and Flesh of Animals: The Shells of Fish, and other Animals, they perfectly corrode into a pellucid Liquor: And Metals they dissolve, except Mercury, Silver, and Gold.

Art, therefore, has sought out and discovered other *Acids*, which are able to dissolve Mercury, Gold, Silver, and other Fossils, which were unaffected by vegetable *Acids*, and these are not easily digestible by the Power of animal Bodies. For vegetable *Acids* may, by the Action of a strong healthy Body, especially if assisted by a considerable Motion, be so changed, as to lose their acid Nature, and be converted into another Kind of Salt: But those *Acids* that we are at present acquainted with, which are capable of dissolving Mercury, Gold, and Silver, are not so easily subdued by the concoctive animal Powers; but being superior to them, for the most Part, destroy them. And hence these become generally Poison to Animals, except in a very few Cases, where a putrid Alcalescence prevails, as when alkaline Poisons are taken in by them, or in a putrid State of the Humours, as where a pestilential Virulence, or an universal Putrefaction in the Small-pox, threaten immediate Destruction.

Fossile, native *Acids*, are rarely to be met with, for it is now discovered, that the medicinal Waters, once looked upon as acid, approach, in every Character, nearer to an Alkali. There is often, indeed, a Vapour observed in Mines, which resembles a suffocating, sulphureous *Acid*, and by other Marks demonstrates its Acidity: But it is very seldom found alone, and very pure, in a fluid Form.

But whenever it happens, which is very often the Case, that it meets with a solid Body, which is capable of attracting that *Acid*, it then unites with it, and becomes fixed, and palpable: And, when it is afterwards drawn out of that fixed Body, it then falls under the Notice of our Senses; and then, as far as it is possible to judge, appears to be always one and the same.

For, if it lays hold of a pinguious Fossil, it produces various Kinds of Sulphurs, which, if they are burnt, emit Fumes, which being collected, refrigerated, and mixed with the humid Air, yield the Spirit, or Oil of Sulphur *per Campanam*. If you take this, and put it into a clean Glass Vessel, and expose it for a considerable Time to a Heat equal to that of boiling Water, you will distil from it a considerable Quantity of pure Water, which, whilst the Sulphur was burning, had insinuated itself out of the Air into the acid Fume of the Sulphur; and there will then remain at the Bottom a ponderous, thick, caustic *Acid*, which in every Character resembles the purest Oil of Vitriol, except in this alone, that it contains nothing of a volatile Metal, which is always found more or less in Oil of Vitriol.

But if this *Acid* happens to corrode Lime-stones, it then produces Alums, which are different, according to the Diversity of the Matter which is mixed with them. All these, if they are first lightly calcined, and then with an intense Fire urged into Vapours, will, by the Condensation of these, yield a Liquor, which, when it is purified according to Art, is nearly the same with the former procured from burning Sulphur.

Again, if native green Vitriol is by the Help of a moderate Heat reduced to a dry, white Powder, and then exposed to a Fire gradually increased to the extremest Degree, it will emit white, cloudy Vapours, which, collected into a Liquid, and accurately depurated, is the very same again as was obtained from Sulphur, and Alum.

The blue Vitriol also, treated in the same Manner, yields a Liquid which is the same with the former, nor can it be di-

tinguished from them, when rectified according to Art, as the Artists express themselves. All these acid Liquors, if urged with a Heat of five hundred and sixty Degrees, begin to boil, emit white, cloudy Fumes, which disperse themselves all around to considerable Distances, and destroy all known Animals, and even Insects.

But, if these Fumes are drawn into the Lungs by Inspiration, they immediately excite a most troublesome Cough, which admits of no Cure, which is succeeded by a suffocating Dyspnoea, and almost immediate Death; or perhaps a most troublesome and incurable Asthma. Oil of Sulphur, Alum, both Sorts of Vitriol, as soon as, by the Action of the Fire, they are raised into Vapours, by Combustion, Distillation, or Ebullition, have exactly the same Effects. Any of these *Acids*, united with a pinguious Oil, produces Sulphur; with a calcarious Earth, Alum; with Iron, Vitriol of Iron; and with Copper, Vitriol of Copper: From all these Considerations, then, we collect, that it is one and the same *Acid*, which is found native amongst all Sorts of Fossils, and is so very ponderous, and requires so great a Degree of Fire to make it boil.

The Properties of this *Acid*, are, First, That it is naturally the heaviest of all *Acids*. To Spirit of Nitre its specific Gravity is as 11 to 9: To Spirit of Salt, as 11 to 8: To Aqua Fortis, as 11 to 9: And to distilled Vinegar, nearly as 11 to 7, *Mem. de l'Acad. Roy. des Sc.* 1699.

Secondly, It is of all *Acids* the most fixed; for, in the Heat of boiling Water, it never emits any Fumes, for, tho' the Water which adheres to it may rise in Vapour, the *Acid* itself never does in such a Degree of Heat, for it requires something more than five hundred and sixty Degrees of Heat to make it boil, and then it emits noxious Vapours.

Thirdly, These *Acids* being perfectly freed from all their Water, by a strong Fire, and by this Means rendered very pure, heavy, and acid, very greedily attract into them Water out of the Air, and by this Means dilute themselves, and increase in Weight.

Fourthly, When rendered very pure, they immediately, upon the Affusion of cold Water upon them, grow surprizingly hot.

Fifthly, This *Acid* induces such an Alteration on Sea-salt, Fountain-salt, and Sal Gem, by the Assistance of Fire, that in Distillation they yield a Spirit of Salt; mixed with Nitre, it causes a Spirit of Nitre to rise from it; and if it is mixed with many other Bodies, dissolved by acid Spirits, it sets them free from their solvent *Acids*, by dislodging them, and rendering them volatile, whilst it often insinuates itself into and fixes in their Places. Upon this Principle it is that Alum and Vitriol, if they are first calcined, and then mixed with Nitre, yield Aqua Fortis; if with Sea-salt, Spirit of Sea-salt: For in the Colcothar there still remains a latent *Acid* of Vitriol, exceedingly strong, and so fixed, that the Fire was not able to expel it, which, being mixed with Nitre, makes the acid Spirit of the Nitre rise into Aqua Fortis, which is the pure Spirit of Nitre without any Mixture of Oil of Vitriol; but at the same Time that Part of the vitriolic *Acid*, which remained in the Calx of the Colcothar, is left at the Bottom with Part of the Nitre, and produces there an exceeding fixed Salt, like vitriolated Nitre; and the same happens with Respect to Sea-salt.

Sixthly, It readily dissolves Iron, but Copper somewhat slower, Silver with a good deal of Difficulty, and Mercury not in less than five hundred and sixty Degrees of Heat: But it will not dissolve either Lead or Tin. In other Respects, this *Acid* agrees with all the rest. It has this too in common with some, that it will perfectly dissolve Camphire into liquid Oil, which, by the Affusion of a large Quantity of Water, revives into true Camphire.

Another fossile *Acid*, which we are acquainted with, is produced from Nitre only, inasmuch that there never was seen in the World a single Drop of it, except what was distilled from Nitre. For if Nitre is intimately mixed with three Times the Quantity of Bole, Clay, Brick-dust, or any Thing of the like Nature, and then urged with a very strong Fire, a great Part of it will be converted into red Fumes, which being condensed into a Liquid, it is then called Spirit of Nitre. Or if dry Nitre is mixed with an equal Quantity of Oil of Vitriol, and distilled in the strongest Sand-heat, gradually increased, the same Spirit of Nitre will be procured from the same Sort of red Fumes.

Or Lastly, Nitre rubbed and mixed with an equal Quantity of the Calx of red Vitriol, or Alum, and then urged with a very great Degree of Heat, will then emit the same Fumes, and from them yield a Spirit of Nitre, which is as good, and as pure, as the former; but is then called by the Chymists Aqua Fortis, Aqua Stygia, and Aqua Docimastica. This Spirit, howsoever prepared, is the same in every Respect, and every Property; for, if there is any Difference, it scarcely discovers itself by any Experiment. And it has this peculiar in it, that, when it grows very hot in the Fire, it always sends forth very red Fumes, and dissolves Silver into very bitter caustic Chrystals, which Solution is proper to this Spirit, and can scarcely be effected by any other *Acid*; even pure Oil of Vitriol will

will not do it without Difficulty. It dissolves also Mercury, Lead, and Copper. Gold however it will not touch; and scarcely dissolves Tin. This *Acid*, when it is intimately united with the Metal it dissolves, adheres to them with a considerable Force, so as to remain united with them, in a very strong Fire. An Instance of this is, Silver dissolved in this Manner, which suffers itself to be melted into the Lunar Caustic, without letting go its corroding *Acid*. Mercurius præcipitatus ruber, red Mercury præcipitate also, when it is rightly fixed, will for a long Time resist an intense Fire, before it parts with the *Acid* that adheres to it.

Sea-salt, like Nitre, when it is pure, discovers no Sign of an *Acid*, but if it is treated in the Manner just mentioned, in Regard to Nitre, it is changed into a volatile acid Liquor. For if, to prevent its Melting, it is mixed with three Times its Weight of Earth, and then urged by a Fire increased, gradually; to the greatest Degree, it will be dissipated into dense, white Fumes, that float about, are very volatile, and, being collected, form a Liquid of a golden or green Colour. If distilled with Oil of Vitriol, it yields the same Liquor, but more volatile. And if mixed with the Fæces of distilled Alum, or Vitriol, and afterwards exposed to a very strong Fire, it will then, in like Manner, give the same Spirit of Sea-salt. And these Spirits, prepared in these three different Ways, are intirely one and the same, and they will be the same, if made with Sal Gemmæ, Fountain, or Sea-salt. This Spirit has this Peculiarity, that if it is drawn from the purest Salt, and you repeat the Distillation upon fresh, pure Salt, when it begins through the Violence of the Fire to grow exceeding hot, it emits white Fumes, and dissolves Gold, which no other *Acid* in Nature is able to penetrate. It likewise dissolves Tin, Mercury with a flatulent Noise, Iron, and Copper. Silver it does in no Manner affect; nor does it perfectly dissolve Lead: So that this again is an *Acid* perfectly singular in its Kind.

Hence, therefore, it appears, that Spirit of Nitre, and Spirit of Salt, are two perfectly distinct Things, though at the same Time they are surprisingly alike, and are converted into each other with a great deal of Ease. Thus, if Spirit of Nitre is cohobated in a glass Retort upon Nitre that is exceeding dry, and purified with the utmost Skill, so that there is not the least Grain of Sea-salt in it, you will then have the very choicest Spirit of Nitre, growing better and better upon every Cohobation, and fitter for the Operations proper to this Spirit. But if this Cohobation is performed upon common Nitre, which is not purified by Crystallization, then the cohobated Spirit of Nitre will lose the Nature of Spirit of Nitre, and will acquire the Properties of Spirit of Sea-salt, or Aqua Regia, and will dissolve Gold. If we carefully examine this extraordinary Fact, we shall easily perceive, that to this natural Nitre there must adhere somewhat of Sea-salt, which intermixes itself with the nitrous Spirit in Distillation, and thus from Spirit of Nitre produces Aqua Regia. And this again appears evident from the following Experiment: Take one Part of pure decrepitated dry Salt, reduced to Powder; put it into a clean Retort, and pour upon it four Parts of good Spirit of Nitre, or Aqua Fortis; distil it then, according to Art, to the utmost Dryness, keeping your Sand-heat very strong to the last; and the acid Spirit, which is thus procured, will be no longer Aqua Fortis, but Aqua Regia, which will dissolve Gold, but will not touch Silver. If you examine then the Salt that remains at the Bottom of the Retort after this Operation, by Solution, Filtration, and Crystallization, you will have a true, pure, inflammable Nitre. *Du Hamel. Hist. de l'Ac. Roy. des Sc. p. 158. Boyle's Orig. Forms, p. 215.*

Again, Take one Part of the purest Nitre, and two of the best Spirit of Sea-salt, and distil them in a proper Manner in a Retort, there will come over a Spirit which will dissolve Gold much easier and sooner than Spirit of Sea-salt. And if the Salt, which remains after the strongest Distillation, is dissolved in Water, filtered and crystallized, it becomes good inflammable Nitre. *Boyle, Ib. from p. 215. to 224. Bohn. Chem. 35; 36. 163. Hoffm. Dissert. Chem. Phys. L. 3. Obs. 20.*

Hence therefore it appears, that Aqua Fortis becomes Aqua Regia, as soon as ever Spirit of Nitre and Spirit of Salt come to be mixed together, in whatever Manner, and almost in what Proportion soever: And farther, if any Portion of Sal Ammoniac, Sal Gemmæ, Sea-salt, Fountain-salt, the Sal Febrifugus of Sylvius, or true Spirit of Salt, is mixed with Aqua Fortis, an Aqua Regia is always produced.

In this History of *Acids* it is particularly remarkable, first, That *Acids* are so easily generated from Substances not acid; as appeared above under the Article of vegetable *Acids*. Wine also, which was not in the least acid, was by being close stopped up in a clean Bottle, and tied to the Sails of a Wind-mill, converted in three Days into good Vinegar, according to the Observation of Monsieur *Homburg*, *Mem. de l'Acad. Roy. des Sc. T. 2. p. 11.*

Secondly, It is farther remarkable, that *Acids*, when they are once generated, are scarcely altered by Fire, though exposed to it ever so long: For Aqua Fortis, Aqua Regia, Spirit of Nitre, Spirit of Salt, and Oil of Vitriol, included in Glasses

hermetically sealed, and exposed for four Years to the equable Heat of an Athanor, retained the same dissolving Power: Vinegar only was grown insipid, and acquired an aromatic Smell; and the Spirit of Salt had begun to corrode the Glass.

Thirdly, These very same *Acids* lose their acid Nature, whilst they act as Menstruums upon solvent Bodies. This Monsieur *Homburg* very ingeniously inferred from a tedious Experiment performed with Mercury and Spirit of Nitre. *Du Hamel. Hist. de l'Acad. Roy. des Sc. p. 442, 443.*

Hence it is evident that the strongest acid Menstruum is, by dissolving its Object, converted into an insipid, unactive Fluid, not unlike Water, and deprived of the proper solvent Power which it before was endowed with. And hence, perhaps, it is not improbable, that these *Acids* are generated and perish. For what Person living has ever discovered any Spirit of Nitre in the World, which was not first procured from pre-existing Nitre? And yet Nitre is produced from Earth, filled with animal Excrements, Lime, and an Alkali, and Air; or from pure Spirit of Nitre attracted into a pure Alkali, particularly one that is fixed. Rich and fat Earths also, if defended from the Rain, and prevented from consuming their Strength by nourishing of Vegetables, are all found by Length of Time to be impregnated with a fertile Nitre, if Care is taken that no Sea-salt comes at them. *Boyl. Scept. Chem.*

Hence then it is evident, that the acid Spirit of Nitre is, by the sole Action of Fire, produced from pure Nitre; whereas native Nitre is produced without any such Spirit first existing in any sensible Form.

Fourthly, These *Acids*, whilst they dissolve Bodies, become concreted with them, are changed and converted into new ones, and thus from one give Rise to a great Variety: For Spirit of Nitre dissolves Silver, Lead, surprisingly alters Tin, Copper, Mercury, Nitre, Antimony, Zinc, and Emery, and with these forms new Bodies, that are different in Taste, Smell, Colour, Density, and in every Effect. *Boyl. Mech. Qual. 118, 119.*

Fifthly, All these *Acids* agree in some Particulars, but differ in others.

They agree with Regard to their Composition with Alkalies; the Effervescences thence arising, and the Generation of new Salts from this Union. As also in their Composition with Chalk, Corals, Crabs-eyes, Pearls, Mother of Pearl, the Shells of Cockles, Limpins, and Oysters, Stones, Bones, Hoofs, quick and slaked Lime, Iron, and Copper. For all these are generally dissolved by all Sorts of *Acids* sooner or later, whether it is affected quietly or with a great Effervescence. These Bodies, when they are thus dissolved, always attract into them the *Acid* of the Solvent out of the Water, with which that *Acid* was before diluted: And then the Matter thus dissolved; by this Means united with its solvent acid Salt, is converted into a Kind of Salt, and admits of a Dissolution in Water, so long as the *Acid* adheres to it; though these Bodies, before this Mixture, were no Ways dissoluble in Water. But when this *Acid* is again by any Method removed from the dissolved Matter, then this constantly appears again in the Form of an Earth; which most powerfully resists Solution by Water. Hence it appears, how very much we may be imposed upon by Water, whilst, judging of it by its Appearance, we make Use of it in our Operations for pure elementary Water; whereas, in Reality, it may contain in it various Kinds of dissolved Bodies, together with their Solvents. And hence, Effects are frequently supposed to be produced by simple Water, which, in Fact, are owing to these latent Solvents and Menstruums. And this happens the more easily, because *Acids* in general, when they are accurately united with the Bodies above-mentioned (Metals only excepted) to a perfect Saturation, lose all their Acrimony, and commonly all their Taste, and thus lie perfectly concealed. Thus, for Instance, let Spirit of Nitre be perfectly saturated with Crabs-eyes; this Solution will be a limpid, and almost insipid Liquor; and when diluted with fair Water, filtered, and kept for some Time in a gentle Heat, it will have the Appearance of pure Water; but, upon pouring into this a strong fixed Alkali, the whole Mass of Crabs-eyes, before dissolved; will immediately fall to the Bottom, and might impose a Belief upon the Unwary, that this was generated from pure Water.

These *Acids* farther agree in this, that, by dissolving Bodies, they not only become united and concreted with their Solvents, but are farther at the same Time changed in their own Nature: For it is demonstrated by undeniable Experiments, that the most acid *Acids*, whilst they corrode their Objects, are truly changed by them, and put off the Disposition, not only of an *Acid*, but of a Solvent also. Thus Spirit of Nitre, for Instance, when it has corroded Mercury, and is separated from it again, presently loses the Power of dissolving it any more. Another Property of *Acids* in Common, is their turning vegetable Juices of a red Colour, as appears in the Turnsole, Roses, and Violets. And again, they all agree in this, that they do not so much alter the Bodies they dissolve, as they are altered by these themselves. This is found to hold true in almost every Case. Vinegar, in dissolved Lead, does not continue Vinegar there, nor is separated Vinegar again from it; but

the Lead is recovered perfect Lead. Spirit of Nitre dissolves Mercury, and the Mercury is procured from it again exactly the same; but the Spirit of Nitre, when it is separated, is nothing like what it was before. Hence it appears, that it is common to all *Acids*, that a great deal of them are continually perishing.

These *Acids*, however, differ very widely, first of all, with Respect to the Proportion between their true *Acid*, and the Water it is mixed with. Thus, in an Ounce of the best Vinegar, there are eighteen Grains of pure *Acid*, and all the rest Water: In an Ounce of Spirit of Salt, seventy-three Grains of true *Acid*, the Residue pure Water: An Ounce of Spirit of Nitre gives two Drams, and twenty-three Grains of *Acid*, the rest Water: The same Quantity of Aqua Fortis, two Drams and twenty-six Grains: And lastly, an Ounce of Oil of Vitriol yields four Drams and sixty-five Grains of *Acid*, according to the Observations of Monsieur Homburg, Hist. de l'Ac. Roy. des Sc.

Secondly, This very *Acid*, when pure, in every particular Sort of it, differs surprisingly in its dissolving Power: For the *Acid* of Nitre, boiled with Gold, has scarce any Effect upon it, except that it changes it black; whereas it dissolves Silver immediately: And the Contrary is true of Aqua Regia. Hence it is evident, that the *Acid* does not act there so much as an *Acid*, as a Body endued with a peculiar Virtue.

Thirdly, *Acids* differ in this Respect, that, whilst they dissolve their Objects, some of them are changed a great deal more than others; thus, Spirit of Vinegar, in dissolved Lead, becomes an oily pinguious Spirit: But Spirit of Nitre, whilst it corrodes Lead, is not altered in this Manner.

Fourthly, The same *Acid* is very much changed by acting upon some particular Bodies, but very little, or not at all, when it acts upon others. Thus, distilled Vinegar, in the Solution of Lead, is altered in the Manner I just now observed; if it corrodes Iron, it loses all its former Nature, nor can it be ever recovered from it again; but if Copper is corroded by it into a Rust, and then dissolved into a green Liquor, and from this Crystals are procured, these Crystals will contain an exceeding strong Vinegar, and if distilled in a Retort, with a great Degree of Fire, yield a very strong acid Spirit of Vinegar, scarcely in the least altered, though it adhered so tenaciously to the Copper. Hence then it appears, what different Changes *Acids* undergo by being united with different Metals; which is true also, with Respect to other Bodies. All *Acids* in general may be diluted with Water. They may be mixed with Spirits, as Spirit of Nitre with Alcohol, with a prodigious Heat, very red Fumes, and an Effervescence which almost bursts out in Flames. They may be combined also with Oils; Spirit of Nitre, sometimes, with such an Agitation as excites Fire; for the most Part with an intense Heat. Oil of Vitriol also, mixed with Alcohol and Oils, generates a prodigious Heat. But, whenever *Acids* are intimately united with Oil, somewhat bituminous, pitchy, or sulphurous, is almost always produced; whence often arise very extraordinary Changes.

Of Diseases caused by a predominant Acid in animal Bodies.

It is to be observed, that all animal Juices are formed either of Vegetables, or other Animals taken into the Stomach, and thence transmitted to the Intestines, where, by the Power of the digestive Organs, they are converted into a balsamic neutral Chyle, neither alkaline nor acid; and this, so prepared, is by the animal Actions mixed with the Blood, in such a Manner, that the Whole together forms one uniform Mass, fit for Nutrition, and adapted to supply all the Exigencies of the animal Economy. But if the digesting and assimilating Organs are weak, or the Aliments taken in Quantities disproportioned to their Strength, they are not converted, in the Manner mentioned above, into a balsamic neutral Chyle, but, putrefying in the Stomach and Intestines, acquire that Sort of Acrimony, which they would produce upon Putrefaction in any Place out of the Stomach, in an equal Degree of Heat and Moisture. And in this Case cannot properly be said to digest in the Stomach, but rather to putrefy. Hence, as the Food is either of an alkaline or acedent Nature, an alkaline or acid Acrimony prevails in the Juices formed from it. Those Aliments are called Alcalefcent, whose Juices become alkaline upon Putrefaction; those are called Acefcent, whose Juices upon the same Occasion contract an Acidity.

The Aliments, from which acid Juices are formed, are all those which are usually called farinaceous. Such amongst many others are Wheat, Rye, Barley, Oats, Beans, Pease, Millet, and Rice. If these are mixed with a sufficient Quantity of Moisture, they ferment, and grow acid, in a Degree of Heat not exceeding that of the Atmosphere in warm Weather; but when mixed with a little Moisture only, they do not so easily ferment, but form a Kind of tenaceous viscid Substance like Glue. Milk is to be numbered amongst acefcent Aliments; and all the Parts of Vegetables, which are naturally acid, or capable of being rendered so by Fermentation, supply the animal Juices with Acidities. Such are all the Fruits which are usually termed *Fructus horæ*, as Apples, Pears, Apricocks,

Peaches, Nectarines, Plums, Oranges, Lemons, Citrons, Cherries, Mulberries, Currants, Raspberries, Strawberries, Elderberries, Figs, Pomegranates, Cucumbers, Melons, Jujubs, and many others of this Sort.

These, though generally excellent Food, especially for those who are accustomed to a plentiful Diet of Flesh, yet become noxious, by Reason of their Acidity, when taken into the Body in Quantities too large for Digestion and Assimilation. These Quantities cannot be exactly determined, for the digestive Organs of the most robust may be overloaded, but these are capable of digesting and assimilating a much larger Quantity, than when the Fibres of which these Organs are composed are relaxed and weak, and cannot act sufficiently upon these Aliments, but suffer them to retain their natural or acquired Acidity in the Stomach and Intestines. Thus we find Girls in a Chlorosis, studious sedentary People, and Children, whose Fibres are either through Infirmary, naturally, or for Want of Motion and Exercise relaxed, contract an Acidity of the Juices, by eating acid or acefcent Aliment. As Exercise braces the animal Fibres, and promotes Digestion, so Rest, or a Defect of Motion, relaxes the Fibres, and retards or hinders Digestion, and may therefore be reckoned amongst the Causes of an acid Acrimony in the Juices formed from acefcent Food.

A Deficiency of good Blood in the Body may also be numbered amongst the Causes productive of an acid Acrimony from acefcent Aliment. For the Chyle, formed from this Sort of Food, will, like Milk, turn acid, unless mixed with a Quantity of good Blood sufficient for its perfect Assimilation. Hence the Rule of Horace,

————— *vacuis committere Venis*
Nil nisi lene decet,

may be taken very justly in a medicinal as well as culinary Sense.

The original Seat of this Acidity is in the Organs of the first Digestion. These are the Stomach and Small Intestines; but from these, by Degrees, it is propagated to the Receptacle of the Chyle, from hence to the Blood, and lastly to all the Humours separated from it.

This acid Acrimony is productive of many Effects, both troublesome and dangerous to the animal Economy, as,

Acid Eructations, which have in some Cases been so sharp, as to induce a Stupor of the Teeth.

A Sensation of Hunger by contracting the Fibres of the Stomach. But it must be observed that this does not confirm the Doctrine of those who assert that all Hunger is caused by an *Acid*, for there is not the least Portion of an *Acid* to be discovered in the Stomachs of the most rapacious, and consequently most hungry Quadrupeds, Birds, or Fish.

Cardialgia, or, as it is usually called, the Heart-burn, from a Stimulation of the Cardia, or left Orifice of the Stomach, which is endued with a most exquisite Sense, by the acid Juices contained in the Stomach. This Species of Heart-burn is cured by Chalk, or any other alkaline Absorbent. But there is another Sort caused by an alkaline Acrimony, which must be treated with diluted *Acids*.

Coagulations of the Aliment taken into the Stomach, especially if it happens to be Milk; Pains, Flatulencies, and spasmodic Contractions of the Intestines, but particularly of the Ileum. These are caused either by the Acrimony of the acid Juices, stimulating the sensible Membranes of the Intestines, or, which I believe is much more frequently the Case, by the Rarefaction of that extremely subtle and elastic Vapour, which arises from vegetable Juices during the Action of Fermentation, which has been called by some of the Chymists, Gas Sylvestris. These Symptoms often arise to such a Degree of Violence, as to constitute that Distemper which is called the Cholera Morbus, and which without a great deal of Care will sometimes be so acute, as to prove fatal in a few Hours. See CHOLERA MORBUS.

As these Acidities mix with the Bile in the Duodenum, they must necessarily alter its Nature, and render it unactive. And as the Bile has a considerable Share in assimilating the Aliment, and converting it into good Chyle, this Assimilation must be prevented, in Proportion as the Bile, by Reason of any foreign Admixture, deviates from its own Nature. The same holds good in Regard to the Pancreatic Juice, and the Saliva, both which, in a natural State, contribute to the Digestion of the Aliment, and the Conversion of it into a balsamic Chyle, capable of entering the Lacteal Vessels, and mixing with the Blood, without communicating to it any Acrimony, either alkaline or acid. But when the Action of the above-mentioned Juices is impaired by an *Acid* in the Primæ Viæ, an acid Chyle is formed, and the very Excrements, discharged from the Intestines, betray an *Acid* in the Smell.

By a careful Observation of these Signs, we may discover an acid Acrimony to prevail in the Stomach and Intestines. And then it is the Business of the Physician, and Interest of the Patient, to correct it in the Primæ Viæ, before it infects the Blood, because then the Disorders, arising from it, are not so easily remedied. But, when the Glands and glandular

dular Secretions are affected; the Case becomes much more difficult and dangerous.

When the acid Acrimony reaches the Blood and Juices, it is discovered by its Effects. Thus, when the acid Chyle is communicated to the Blood, as it cannot by the Force of the Circulation be intimately mixed with it, so as to form one uniform Mass, the Blood loses by Degrees its florid red Colour, and the Patient, in Consequence of this, becomes pale. Of this we frequently meet with Instances in weak Children, and Girls, of a lax Habit, labouring under a Chlorosis, whose Blood, as it appears when let out of the Veins, is white instead of red, mixed with some Streaks of red Blood. Hence also the Serum of the Blood is chylous, as it appears after standing a sufficient Time to separate.

The Secretions from the Blood, thus infected with Acidity, are also frequently acid. Thus, in Women of a lax Habit, we sometimes meet with acid Milk. The Saliva is also in some Cases infected with an Acidity, and even the Sweat has an acid Smell. But the Acidity of the Sweat is not in all Cases a bad Symptom; for in Fevers, where the Juices have had a Tendency to an alkaline Putrefaction, these Sweats are a good Sign, as they discover that the Danger from an alkaline Putrefaction is at an End. This Symptom is taken Notice of by Hippocrates, and ranked amongst those of good Prefage.

From this State of the Blood Obstructions in the capillary Vessels are generated, and hence troublesome Itchings of the Skin; Pustules, very frequent after eating great Quantities of Fruit; Ulcers which are pale, slow in their Progress, and difficult to heal.

Hence also Coagulations of the Blood, which render it unfit for Circulation, and consequently for Nutrition, and the Uses of the animal Economy.

But the acid Acrimony has yet a worse Effect when it reaches the Nerves, nervous Membranes, and the Brain; for then, by stimulating these sensible Parts, it is productive of Convulsions, Epileptic Fits, an irregular Circulation of the Blood, and at last Death, of which Children afford too frequent Examples.

From what has been said with Respect to an Acid abounding in animal Bodies, many Disorders, to which sedentary People, and Women of a lax Habit, are subject, may be discovered and understood. But it will be particularly useful in explaining the Distempers to which Children are subject, in whom all the Causes of an acid Acrimony seem to contribute to their Destruction, as acescent Aliment, Laxity, and Want of Motion.

Poor People, whose Food is principally of the farinaceous Kinds of Vegetables, and who eat but little Flesh-meat, are subject to these Disorders, but would be much more so without the strong Exercise they generally use; for Exercise, as was before observed, by strengthening the animal Fibres, and promoting the Digestion of the Aliment, and Assimilation of the Chyle, prevents an acid Acrimony from being formed in the Juices.

Artificers also who are concerned in the Preparation of acid Spirits, or who use them in their Trades, are very subject to contract Acidities in their Juices. Of this Sort are those who prepare Cerufs, and Scarlet-Dyers.

Disorders from a prevailing Acid in animal Bodies are to be cured in general by such Things as are directly opposite to the Causes of Acidity. Thus, Aliments are to be used which are of an alcalescent Nature, or which turn alkaline upon Putrefaction. Such are Broths made of the Flesh of Birds, Quadrupeds, or Fish; Jellies made of the same; and the Flesh of these, which best answer this End, either roasted or boiled.

Those Vegetables also which contain an aromatic alkaline Oil, as they are opposite to Acidity, are in this Case proper in Medicine or Food. Of these the illustrious Boerhaave gives the following Catalogue:

<i>Abies</i>	Wormwood.
<i>Alliaria</i>	Sauce alone, or Jack by the Hedge.
<i>Allium</i>	Garlick.
<i>Anethum</i>	Dill.
<i>Anthora</i>	Wholesome Wolfsbane.
<i>Angelica</i>	Angelica.
<i>Anisum</i>	Anise.
<i>Apium, Celeri</i>	Smallage.
<i>Aristolochia longa</i>	Long Birthworth.
<i>Aristolochia rotunda</i>	Round Birthworth.
<i>Armoracia</i>	Wild Radish.
<i>Arum</i>	Cuckow-pint.
<i>Asclepias</i>	Swallow Wort.
<i>Asparagus</i>	Sparrow-grass.
<i>Asphodelus Albus</i>	White Asphodel.
<i>Basilicum</i>	Basil.
<i>Brassica</i>	Cabbage.
<i>Calamus Aromaticus</i>	Aromatic Reed.
<i>Calamentha</i>	Calamint.
<i>Carduus Benedictus</i>	Holy Thistle.
<i>Carduus Maris</i>	Ladies Thistle.

<i>Carum</i>	Carraway.
<i>Caryophyllata</i>	Avens.
<i>Caryophylli Aromatici</i>	Cloves.
<i>Cochlearia</i>	Scurvy-grass.
<i>Cepa</i>	Onion.
<i>Centaurium minus</i>	Lesser Centaury.
<i>Daucus</i>	Wild Carrot.
<i>Eruca</i>	Rocket.
<i>Eryngium</i>	Eryngo.
<i>Erysimum</i>	Hedge Mustard.
<i>Eupatorium</i>	Agrimony.
<i>Galanga major</i>	Greater Galangals.
<i>Galanga minor</i>	Lesser Galangals.
<i>Helenium</i>	Elecampane.
<i>Lepidium</i>	Dittander.
<i>Majorana</i>	Marjoram.
<i>Marrubium</i>	Horehound.
<i>Matricaria</i>	Feverfew.
<i>Mezereum</i>	Spurge Olive.
<i>Napus</i>	Navew gentle.
<i>Nasturtium</i>	Cressies.
<i>Nepeta</i>	Cat-mint, or Nep.
<i>Origanum</i>	Origany.
<i>Piper</i>	Pepper.
<i>Porrum</i>	Leeks.
<i>Pyrethrum</i>	Pellitory of Spain.
<i>Raphanus</i>	Radish.
<i>Ruta</i>	Rue.
<i>Saponaria</i>	Soap-wort.
<i>Satyrium</i>	Satyrium.
<i>Serpillum</i>	Mother of Thyme.
<i>Sabina</i>	Savin.
<i>Satureia</i>	Savory.
<i>Sedum acre vermiculare</i>	Acrid vermiculated House-leek.
<i>Sinapi</i>	Mustard.
<i>Squilla</i>	Squill.
<i>Thymus</i>	Thyme.
<i>Thlaspi</i>	Treacle Mustard.
<i>Viectorialis</i>	Spotted Ramsons.
<i>Urtica</i>	Nettle.
<i>Zedoaria</i>	Zedoary.
<i>Zinziber</i>	Ginger.

Amongst Foods that are proper to destroy an acid Acrimony in the Juices, are,

First, those aquatic Fowls that prey on Fish or Frogs.

Secondly, Those Birds which devour Insects; for in these the volatile Salts are rendered highly alkaline, having undergone a double Sublimation, or rather Rectification, first in the Body of the Fish, Frog, or Insect, and next in the Fowl or Bird that eats it.

A third Species of Animals, proper in these Disorders, are those which, though their Food is very simple, yet by excessive Motion have their alkaline Salts highly exalted, and rendered extremely alkaline and penetrating.

A fourth Sort are Fish of Prey, and Shell-fish.

Amongst the first Sort is the Duck, of which Lemery says, that which is tame yields much Oil, volatile Salt, and Phlegm; but the Wild Duck yields more volatile Salt, and less Phlegm. It is for this Reason the last have a higher Taste than the tame Sort. To this Class belong all Fowls of the Duck Kind, as the Teal, Widgeon, Macreuse. The Bittern yields more volatile Salt than the Duck.

The Goose. All Fowls of the Goose Kind yield a great deal of volatile Salt, but they that are wild more than the tame Sort. And it may be laid down as an universal Rule, that wild Animals yield more volatile Salts, and those of a mere alkaline Nature, by Reason of the greater Motion and Exercise which they use, than those which are tame. It is on Account of the volatile Salt in Geese, that their Fat is very penetrating. It should seem that the Solan Goose, whose Oil, upon Fusion, emits a very penetrating and fetid Smell, and whose Flesh is of a very exalted Taste, should contain the greatest Quantity of alkaline Salts of any of the Goose Species.

Boerhaave reckons the Larus, or Sea-mew, amongst these Fowls of Prey.

Amongst the second Sort are the Sparrow, Chaffinch, Mavis, Fellfare, and Lark, which yields a great deal of volatile Salt, as does the Partridge, Pheasant, Quail, Land Rail, and Plover. Lemery.

Of the third Species are the Woodcock, Snipe, Hare, Deer, and Wild Boar, all which contain large Quantities of highly exalted volatile Salt.

The Eggs of the Birds or Fowls mentioned above, as well as their Flesh, are excellent Food, when an acid Acrimony prevails.

Almost all Sorts of Fish may be numbered amongst the fourth Species, because they either prey upon other Fish, or Insects, and yield a very volatile alkaline Salt.

That

That the Meaning of the Words *Volatile Salts*, so often used, may be understood, I must take Notice, that the Salts of most Vegetables are fixed; that is, they do not rise in Distillation, being detained by a large Portion of Earth, to which they are strongly united. But this Earth is separated from them by Putrefaction, insomuch that most Vegetables, which are putrefied, yield in Distillation a volatile Salt, much like that of Animals. And as the Dissolution of vegetable Food in the Stomachs of Animals has the same Effect upon it, as Putrefaction, that is, disengages the Salt from the fixing Earth, for this Reason all the Salts of animal Bodies are volatile, highly alkaline, and of a penetrating Nature.

The Salts also of many Plants, that have an aromatic Acrimony, yield a volatile alkaline Salt by Distillation, as Mustard, Horse-radish, Scurvy-grass, and many other of those specified in the Catalogue given above. It is these Salts in animal and vegetable Substances that neutralize and destroy the acid Acrimony prevailing in the *Primæ Viæ*, and the Animal Fluids.

With the Aliments specified above, Boerhaave advises every three Hours a Glass of the following Wine, containing three Ounces :

Take French White Wine a Pint and half.
Salt of Wormwood two Drams, mix together

There are many Sorts of Medicines which either destroy the *Acid*, or render it ineffectual, so that the Acrimony thereof can do no Hurt. For this Reason these are to be used in an acid State of the Juices.

Absorbents seem to claim the first Place amongst these, because, when immersed in *Acids*, they have the Faculty of destroying their Acrimony, and rendering them mild and inoffensive.

This Class consists of the dried Bones of Fishes, as the Jawbone of the Pike.

Of the Eyes, Claws, and Shells of Crabs, Crevices, and Lobsters.

Of the Shells of Oysters, and other Sea-fish of the testaceous Kind.

Of Coral, Pearl, and Mother of Pearl.

Of Chalk, Bole, Osteocolla, and fat marly Earths.

Amongst these are also the Lapis Hæmatitis, Filings of Tin and Iron.

Some of these Absorbents are attended with the Inconveniences mentioned under the Article *ABSORBENTIA*: That is, they mix with the Viscidities which they meet with in the Stomach and Intestines, and with them form a tenacious Kind of Mortar, if I may so call it, which sticks to the Stomach and Intestines, and does a great deal of Mischief. This however may be prevented by giving them either mixed with gently cathartic Ingredients in small Quantities, or else by giving gentle Purges, repeated at proper Intervals during their Use.

Hoffman is of Opinion, that the Medicines of this Class do a great deal of Mischief by increasing Viscidity in the Stomach and Intestines, unless they meet with an *Acid*; and in this Case they are of great Service, not only by destroying and taking off the Effects of the acid Acrimony, but by forming a neutral Salt, which is of itself an admirable Resolvent, and well adapted to cure the Disorders proceeding from a redundant *Acid*.

Hence the Mischief that young Girls do themselves, who are inclined to what is usually called the Green Sickness, by taking great Quantities of Chalk, Lime, and other Absorbents, is accounted for and understood. They are directed by Nature to eat these, in order to relieve themselves under the uneasy Sensations they perceive in their Stomachs from the Stimulation of the acid Acrimony. But as they take them in great Quantities, and without proper Purges to carry them out of the Stomach and intestinal Tube, when they have had their good Effects, they form viscid Concretions, which hinder Digestion, stop the Orifices of the Lacteals, and consequently prevent a Supply of Chyle from being conveyed to the Blood, and hence Weakness, Inability to Motion, Paleness, and the rest of those Symptoms which Physicians observe in Girls who have used themselves to eat these Absorbents.

This natural Inclination to Things capable of relieving the present Disorders which affect Animals, is common in the Brute Creation, and is called Instinct; and Physicians, by a careful Attention, may daily discover something of the same Kind in Man, which directs to what will relieve. And it is probably for this Reason that Hippocrates lays it down for a Rule, that *those Meats and Drinks, though not altogether so proper, which are agreeable to the Patient, are to be preferred to those which are better, but unpleasant.* Aph. L. 2. 38.

Diluters also are sometimes proper in these Cases, because the more an *Acid* is diluted, the weaker it is, and consequently acts in a less Degree. Thus, the stronger *Acids*, in the Quantity of a single Drop, will corrode and destroy the Skin or Flesh of any Animal that it touches. But, when the same Quantity of *Acid* is diluted with a large Portion of Water, it becomes innocent and inoffensive.

It was doubtless this Consideration that directed Dr. Sydenham to give large Quantities of warm Water to one that had taken corrosive Sublimate, both by the Mouth as a Vomit, and by Way of Clyster.

But these Diluters must be used with Care and Caution, for they relax and weaken the Organs of Digestion, and thereby increase one Cause of Acidity.

These Diluters are either Water itself, or Decoctions of animal or vegetable Substances made with Water.

Another Class of Medicines, which give Relief in an acid Acrimony, consists of such Substances as sheath the Spicula, or sharp Points of the *Acid*, and prevent their Action on the sensible Membranes, and at the same Time defend the nervous Fibres from its Acrimony. But these are subject to the Inconveniences mentioned above in Regard to Diluters, that is, they tend to relax still more the Fibres of the Organs of Digestion already too weak. Amongst these are the following:

Almonds, both sweet and bitter.

Pistachio Nuts.

Common Nuts, Filberts, Walnuts, Cocoa Nuts, of which Chocolate is made.

Seeds of the white Poppy.

The expressed Oils of all these, and of Olives.

Jelly Broths of Flesh or Fish.

To this Class also belong the oily aromatic Vegetables, of which I have given a Catalogue above.

There is another Class of Medicines of great Importance, where an acid Acrimony prevails, because, upon being mixed with *Acids*, they immediately raise a strong Effervescence, destroy the *Acid*, and are themselves at the same Time destroyed, both together by their Union forming a new Species of Salt, neither alkaline nor acid, but neutral, which is endued with considerable medicinal Virtues, being gently stimulating, diuretic, diaphoretic, and resolvent.

The Substances, which induce this great and sudden Alteration in *Acids*, are

Fixed alkaline Salts, prepared from burnt Vegetables of any Sort.

Volatile alkaline Salts distilled from animal Substances, putrefied Vegetables, or alkaline aromatic Plants.

Soaps, either fixed, as Venice Soap; or volatile, as the volatile, oily, saline Spirits, distilled from Blood, Urine, Hartshorn, or Silk; the *Offa Helmontiana*, made by the Union of a highly rectified Spirit of Wine with a strong Spirit of Sal Ammoniac. See *OFFA HELMONTIANA*.

To this Class also belong volatile alkaline Salts united by repeated Sublimations with an aromatic vegetable Oil, of which Boerhaave gives the following Example :

Take the purest Salt of Hartshorn an Ounce,
Chymical Oil of Lemons a Dram; unite them by repeated Sublimations in a tall glass Vessel.

These, however, must be used with great Care and Caution, for whenever the Blood is moved with too much Violence, and any Degree of a Fever is raised, these will infallibly increase it, and the concomitant Symptoms, introduce others, and endanger the Life they are intended to preserve.

All the Classes of Aliment and Medicines, specified above, are very good Assistants in the Cure of Disorders proceeding from an acid Acrimony, but are not sufficient alone to complete it; for, so long as the Organs of Digestion remain in a State of Laxity, acedent Aliments will again produce the same Acrimony, and renew the Disorders depending thereon. For this Reason the Cure must be completed by a corroborating Regimen, and strengthening Medicines, that is, such as restore the Fibres, Vessels, and Membranes, which compose the Viscera concerned in the Digestion and Assimilation of the Aliment, to that Tension and Elasticity, which are necessary to the Performance of their respective Functions.

Aliments adapted to render the weak Fibres of the digestive Organs, and the animal Fibres in general, strong, are such as require but a small Action of these Organs, in order to convert them into good Chyle; and even these ought to be taken in very small Quantities at a Time, and to be repeated frequently, that is, the Quantity, and Frequency of Repetition, must be proportioned to the Power of digesting. For nothing can be more irrational than to imagine that strong Aliments, and those in large Quantities, can contribute to the Strength of an Animal, whose Organs cannot digest them sufficiently for the Formation of good Chyle.

It is for this Reason, that Hippocrates lays it down for a Rule, that *the more you nourish, that is, the more Aliment you give to impure Bodies, the more Mischief you do them.* Aph. Sect. 2. 10.

Aliments of the most easy Digestion are,

1. Milk, which is a Sort of Chyle already prepared, and gives the Stomach but very little Trouble to digest it. But it cannot be a proper Food whilst there are any Remains of Acidity in the Stomach and Intestines, because it will be subject to curdle, when mixed with these; but when the acid Acrimony

mony in the Primæ Viæ is destroyed, it affords an excellent Nourishment, if given in Quantities at a Time, not superior to the Powers of Digestion, for then it will not be subject to turn acid. But Milk loses all its medicinal, and a great deal of its alimentary Virtues, if once boiled. It must therefore be taken warm from the Animal that gives it.

The Milk of a Woman in the Flower of her Age, that uses a good Diet, and moderate Exercise, is of all others the best. Next to that Asses; then Goats, and lastly Cows Milk. *Boerhaave.*

2. The raw White of an Egg just laid, before it has had Time to cool. This approaches very near the Nature of the Serum of the Blood, being designed for the Nutrition of the Chicken during Incubation. But this, like Milk, loses its Virtue when boiled. It may be taken in new Milk, mixed with an equal Quantity of Water, provided no Acidity, in the Primæ Viæ, forbid the Use of Milk.

3. Broths, prepared from the Flesh of young healthy Animals, accustomed to moderate Exercise, carefully cleared of the Fat. Amongst these Chickens claim the first Rank, next Veal, then Mutton, and Beef the last. The Fat is easily separated from them, when suffered to grow cold. They are best when boiled in a Vessel, stopped so close, as to prevent the most subtile Parts from exhaling. *Boerhaave.*

4. Aliment in various Forms may be contrived to be made from Wheat Bread, or Biscuit, moderately fermented, to destroy the Viscidity, to which all farinaceous Vegetables are subject. *Boerhaave's* Directions are, to boil eight Ounces of Bread, or Biscuit, with three Pints of Water for an Hour, in a close earthen Vessel, and then to strain it through a Sieve. This may be mixed with Milk, Broth, Wine, Beer, or Water, as the present Circumstances of the Patient shall render either the one or the other most suitable.

A very small Quantity of these Aliments should be taken every Hour, or every two Hours, according as the Organs of Digestion shall be found to be more or less in a State of Imbecillity, but never to Satiety, or, to use the common Expression, till the Belly is full. *Boerhaave.*

I am sensible there are some, who think Directions, in Relation to Aliments of this Kind, deserve more the Notice of Nurses, or those who are employed in culinary Offices, than Physicians. But nothing can be unworthy the Regards of a Physician, that can in any Degree contribute to the Cure of Diseases. Those who have been Witnesses of the prodigious Effects of a well regulated Course of Food, obstinately persisted in, for a sufficient Length of Time, in Cases where the best chosen Medicines have proved ineffectual, will not be displeased that I have been thus particular.

Wine is a Part of Aliment not to be neglected. Those that are proper, in the Case before us, are such as by their Abundance of Spirit, and Stypticity, manifested by their austere rough Taste, contribute to the necessary Elasticity and Tension of the animal Fibres. Such are Florence Wines, the stronger French Clarets, the black Greek Wines, and some of the Spanish. And to these the Spirits of Wine, properly managed, may be added, generous Malt Liquors, and strong Mead. *Boerhaave.*

Amongst Simples, all those that abound with earthy austere Particles, and all aromatic Bitters, are adapted to brace the animal Fibres, promote Digestion, and destroy the original Cause of Acidity. In regard to these, see a more particular Account under the Article LAXITAS.

But nothing is more effectual, by Way of Medicine, in these Cases, than Bitters, wherein Steel is an Ingredient. For Steel has great Virtues, both as it is highly destructive of an Acid, and effectual in corroborating the animal Fibres.

This Regimen, and these Medicines, are of very little Importance without Exercise, which must be adapted to the Strength and Condition of the Patient. For Motion promotes the Alcalescence of the Juices, and universally increases Strength, of which the robust Legs of Chairmen, and Arms of Watermen, afford obvious Examples.

The different Sorts of Exercise, proper to restore the lost Elasticity to the Fibres, are Riding, Walking, Sailing, and Frictions, for a more particular Account of which see the Articles LAXITAS and GYMNASICA.

ACIDULÆ. Thus cold mineral Waters have been called, which contain a brisk Spirit, to distinguish them from THERMÆ, which are those that are hot.

The Name owes its Original to a Supposition, that these Waters were acid, which latter Observations and Experiments have proved to be without any Foundation.

These mineral Waters, both hot and cold, were called by the Greeks *ῥοδαὶ φαρμακωδὶ*, or *ἄντρον*, Medicinal Waters, or Waters produced spontaneously.

Galen relates, that in his Days many People purged themselves in Spring and Autumn by the sulphurous, bituminous, and nitrous Waters; and that those, who were subject to the Stone, drank them by Way of Precaution. And Cælius Aurelianus *Chronicor. L. 3. C. 2.* recommends drinking the Waters of COTILIA (he means CUTILIA,) and NEPI, in that Disor-

der which he calls *Stomachica Passio*. Le Clerc is therefore mistaken, when he says, it does not appear, that Cælius Aurelianus made Use of mineral Waters internally.

The Waters of Cutilia are mentioned by Pliny in the following Extract, who is more particular with Respect to the Uses and Advantages of mineral Waters, than any of the Antients, and has amongst some fabulous Accounts given others which daily Experience proves to be true. I shall therefore insert what he says upon this Subject, after having remarked, that tho' ACIDULÆ properly signifies, the *brisk cold mineral Waters*, it will be impossible, in treating of them, to separate them so far from the warm, as not to take some Notice of the Latter.

PLINY, Book 31. Chap. 2.

Of the different Qualities of Waters, and their medicinal Virtues.

Medicinal Springs, and those very plentiful ones, are found every where in many Countries, some cold, some hot, and, in some Places, both cold and hot, with a very small Distance between them; as among the Tarbelli, a People of Aquitain, and in the Pyrenean Mountains. Some cure Diseases by their kindly Warmth, or piercing Cold, and rise out of the Earth for the sole Benefit of Mankind above all other Creatures. To these Waters are the Gods themselves obliged for the Increase of their Number and Names, and Cities for their Original, as Putcoli in Campania, Statyellæ in Liguria, and Sextiæ in the Province of Narbonne. But no Place, both for Plenty and Variety, is better stocked with them, than the Bay of Baixæ, or has them endued with more Kinds of Virtues, as they are differently impregnated with Sulphur, Alum, Salt, Nitre, Bitumen, or a Mixture of Acid and Saline; the very Vapour of some of them is beneficial. Those, called the Posidian, are of such Force as to heat the Bagnio's, and make the cold Water in the Bathing-tubs to boil, and thoroughly dress Meat. Those which belonged to Licinius Crassus send their Vapour out to the Sea itself, inasmuch that something salutary to Man is found amidst the Waves.

Generally speaking, they are good for the Nerves, and help the Gout and Sciatica. Some are proper in Luxations and Fractures. They empty the Abdomen, cure Ulcers. They are particularly beneficial to the Head and Ears, and those, called the Ciceronian, are good for the Eyes. The Sinuesan Waters, in the same Country (Campania) are reported to cure Barrenness in Women, and Madness in Men, and those in the Island Ænaria, to cure the Gravel; as does also that called Acidula, four Miles from Teanum Sidicinum. This last is cold. The same Virtue is in that of Stabianum, which is called Dimidia, and another in Venafranum that comes from a mineral Spring. The same Benefit is experienced by those who drink of the Veline Lake, and of a Fountain in Syria, near Mount Taurus, as Marcus Varro reports; and Callimachus says the same Thing of Gallus, a River of Phrygia. But this last should be drank with Moderation, lest it should cause Madness, as it happens to those who drink of the red Fountain in Æthiopia, according to Ctesias. The Waters of Albula, near Rome, cure Wounds: These are extremely cold: But the Cutilian Waters in the Country of the Sabines, which are also remarkable for their Coldness, seize the Body with a Kind of Suction, so that a Person almost fancies himself bitten, being of excellent Benefit to the Stomach, Nerves, and the whole Body. A Fountain in Thespiæ, and the River Elatum in Arcadia, promote Conception: The Fountain Linus, in the same Arcadia, preserves the Child in the Womb, and prevents Miscarrying. On the other Hand, a River in Pyrihea, called Aphrodisium, causes Barrenness. The Lake Alphon cures the Leprosy. Varro tells us, that one Titius, a Man of Pretorian Dignity, was so disfigured with that Disease, that he had the Face of a marble Statue. The Cydnus in Cilicia cures the Gout; on the contrary, the Water in Træzene makes the Feet distempered. Tungri, a City of Gallia, has a famous bubbling Spring, of a ferrugineous Taste, which remains last on the Tongue, and is not perceived before. It cures Tertians and the Gravel; set over the Fire, it first grows turbid and thick, and at last turns red. The Leucogean Springs, between Puteoli and Naples, heal Wounds and sore Eyes. Cicero, among his Wonderful Curiosities, took Notice, that the Hoofs of Cattle were hardened in the Reatine Marshes. Eudicus relates, that there were two Springs in Hestieotis; one called Cerone, which made the Sheep black that drank of it; and the other Melan, which made them white; but those, which drank of both, were pyc-balled. Theophrastus writes, that the Crathis, in the Country of the Thuri, made Sheep and Oxen white, but the Sybaris black: Nay, the Alteration was visible in the Inhabitants themselves, for they who drank of the Sybaris were blacker, harder, and had curled Hair, but the Drinkers of the Crathis were white, soft, and straight-haired. In Macedonia, they who desired a white Breed, drove their Stock to the Allacmon; such as fancied black, or brown, kept theirs by the Axios. The same Author tells us, that in some Places all

Things, even the Fruit, are produced of a dark Colour, as among the Messapii; that the River Aleos in Erythræ breeds Hairs in Bodies. In Bœotia, by the Statue of the God Trophonius, near the River Orchomenon, are two Springs, one causing Memory, the other Forgetfulness; from whence they take their Name. In Cilicia, by the Town of Cescus runs a Brook, called Nûs, which quickens the Senses of such as drink of it, as Varro reports. But in the Island Cea is a Spring, which causes Dulness; another at Zama in Africa, which clears and heightens the Voice; that a Loathing of Wine comes on such as have drank of the Clitorian Lake. Polycletus speaks of a Fountain near Soli in Cilicia, that ran with Oil; Theophrastus of another such in Ethiopia. Lycus tells us of a Fountain in India, that lighted Torches; such another is said to be at Ecbatana. Theopompus says, there is a Lake in Scotussa, which heals Wounds; Juba, that there is a Lake among the Troglodytæ, called the Mad Lake for its ill Qualities; that thrice in the Day-time it becomes bitter and salt, and then grows sweet again; the like Changes it undergoes in the Night; and that it produces white Serpents, twenty Cubits in Length. The same Author relates, that, in a Fountain of Arabia, the Water mounts with such a Force, as to cast off whatever Weight is pressed upon it. Theophrastus relates, that the Fountain of Marfyas in Phrygia, at Celænæ, threw out Stones. Not far from thence are the two Fountains of Cleon [Weeping] and Gelon [Laughing] which took their Greek Names from their Effects. At Cyzicum is Cupid's Well, of which, whosoever drinks, as Mutianus believes, is freed from Love. At Cranon is a hot Spring, but not to an extreme Degree, whose Water, mixed with Wine, preserves the Heat of the Mixture three Days in the Vessel: And at Mattiacum, in Germany, beyond the Rhine, are hot Springs, whose Waters keep their Heat three Days after they are drawn. At the Brinks of the Springs are Pumice-stones, generated by the Waters.

If any one thinks these Things incredible, let him know, that greater Miracles of Nature are no where to be found than in the Waters. Ctesias tells us of a Pool in India, called Siden, in which nothing would swim, but all sunk; and Coelius says of our Lake Avernus, that the very Leaves sunk in it; Varro, that the Birds which flew over it fell dead. On the Contrary, in the Lake Apuscidamus, in Africa, all Things float, and nothing sinks. The same Thing is observed of the Pythian Well in Sicily, as Apion relates, and of a Lake in Media, and of Saturn's Well. In Judæa is a Brook that dries up every Sabbath Day. Some of these Wonders are of such a Nature as to strike us with Horror. Ctesias writes of a Fountain in Armenia, that produced black Fish, which gave present Death to the Eater of them. I have heard of the like Sort near the Rise of the Danube, which holds till you come to a Spring in the Bank of its Channel, where that Kind of Fish ends; for which Reason the Head of that River is supposed to be at this Place. The like is reported of the Nymphs Pool in Lydia. In Arcadia, by the Pheneus, there runs out of the Rocks a Water, called Styx, which kills on the Spot. But Theophrastus informs us, that there are small Fish in it, which are also rank Fish; and in this Respect it differs from other deadly Fountains. Theophrastus also speaks of deadly Waters at Cycabri in Thracia; and Lycus of some among the Leontines, which killed the third Day after drinking them. Varro tells us of a Fountain by Soracte, four Feet in Breadth, which at Sun-rise works up, like a boiling Pot, and overflows, and that the Birds, which sip of it, lie dead on the Spot. For some of these fatal Streams, it must be observed, have an ensnaring Quality in them, and an alluring Aspect, like the Nonacris of Arcadia. They take this to be hurtful by its excessive Coldness, since it petrifies as it runs. Quite other Circumstances attend that of Tempe in Thessaly, whose very Sight strikes a Terror; it is said that Iron and Copper are corroded by its Water. Its Head is but narrow, and, what is remarkable, embraced all around, as it is said, by the Roots of a Siliqua Sylvestris, ever blooming with Purple, and the Brims are covered with a green Herb peculiar to it. In Macedonia, not far from the Sepulchre of Euripides, the Poet, two Streams mix, one of most wholesome Water, the other deadly. In Perperenæ is a Fountain, which makes the Ground stony wherever its Water comes. The same Property belongs to the hot Spring at Delium in Eubœa; the Stream washes against the Sides of the Rocks, and these grow in Height. In Eurymenæ, Garlands, cast into the Fountain, turn to Stone. At Colossi is a River, into which you cast Bricks, and pull them out converted into Stones. In the Corycian Grotto the Drippings of the Water harden into Stone; at Micza in Macedonia, they petrify as they hang from the Vault; at Cerycum, after they are fallen off; in some Places both Ways, and form Pillars of a discoloured Hue, as in the large Grotto of the Rhodians at Phausia in the Chersonesus.

Thus far we find, by the Evidence of Pliny, what the Ancients knew of mineral Waters, and they have been used ever since, more or less, as different Fashions in the Theory of Physic have happened to prevail. And yet, what is greatly to be la-

mented, the Practice of Physic, so far as mineral Waters are concerned in it, is at this Day in a great Measure empirical, No-body having discovered a Method of determining the Effects of mineral Waters a priori, or before a Number of random Experiments have shewn their Efficacy. Hence, though every Country abounds with mineral Waters, but very few have been introduced into Practice, and even those originally by Accident. And, indeed, very little was known of the Nature of mineral Waters, till Hoffman, by some well adapted Experiments, discovered the Errors of former Writers upon these Subjects, and laid a Foundation for farther Advances; and our own Countryman, Dr. Shaw, improving upon Hoffman, has carried his Enquiries farther, inasmuch that we are now in a fair Way of bringing this valuable Part of the Materia Medica into more general Use, and to better Purposes, as we may be more able to ascertain the Effects of different mineral Waters, in different Cases, when a sufficient Number of Experiments have been made upon their Plans.

It is to the last-mentioned Authors, and Dr. Stare, I shall be principally obliged for what I shall say on this Head; and I shall be very particular, as the Importance of the Subject seems to demand it, for I am inclined to believe, that if all the Virtues of mineral Waters were understood, Physic, in the general Acceptation of the Word, would be no longer of much Use in chronical Disorders, which might then be cured by a Method safe, expeditious, and agreeable, and, perhaps, much more effectual than any other which Physicians have yet contrived. I am not singular in this Opinion, as will appear by the following Observations of the illustrious Hoffman.

1. It appears, that mineral Waters, both of the hot and cold Kind, are of such Virtue and Efficacy, for the Preservation of Health, and the Cure of Diseases, as in the highest Degree to exceed the Shop Remedies, prepared by the nicest Art: And we are well assured that this Fact cannot be disputed, but by such as derive their Arguments from their Ignorance and Indolence, and are no Way competent or experienced Judges in the Case.

2. These Waters approach, the nearest of any Thing in Nature, to what has been so much searched after, an universal Medicine, suited to the Cure of all Diseases. But there is no Occasion for any such laborious Enquiry, whilst we find Waters, adapted to all Kinds of Disorders, spontaneously offer themselves. And I would fain know whether any Physician, of practical Knowledge and Experience in his Art, can say of any other Medicine, what we certainly know to be true of Waters, viz. that they effectually cure, both with Expedition and Safety, yet occasion no Loss of Strength; but gently operate by all the Outlets of the Body; and thus discharge, at every Pore, the Matter which generates and breeds Diseases. For these Waters not only readily dilute, propel, and carry off Collections of impure Humours, lodged in the Stomach and Intestines, but likewise admirably promote the Discharge of all peccant, saline, and unctuous Matter, by the Conduits of Urine; and at the same Time breathe out the more subtle and rarefied pernicious Particles, by that general Strainer of the Body, the Skin.

3. These Waters, besides their Power of evacuating, are also possessed of a singular alterative Virtue; inasmuch that there is no other Remedy, hitherto known, so fit for dissolving viscid and clammy Humours, diluting and tempering such as are sharp and corrosive, correcting and changing such as are acid and austere; and for opening and breaking away Obstructions and Coagulations in the finer Vessels. Add to this, that they have a most desirable, strengthening Virtue, whereby they nobly brace up, and recover such solid Parts of the Body as have lost their natural Tone or Springiness, or become slack and remiss. And, what is more extraordinary, they produce all these good Effects, without occasioning any subsequent Mischief; and therefore may, with the utmost Safety, be given, not only to Persons in a State of Health, but even to those in the weakest Condition, Women in Child-bed, old People, and Children. In short, they have also this Particularity, that they may be innocently and advantageously used in different Constitutions, and Ages, at all Seasons of the Year; not excepting the Winter itself.

4. What is still more wonderful, but no less certain, every capital mineral Spring seems endowed with quite different Virtues, so as to produce contrary Effects. Thus, if the Excretions of the Body are too large, these Waters check them with Safety; or if they are too small, the very same Waters will effectually increase them. Again, if the first Passages, particularly the Stomach and the Duodenum, be over-loaded with a bilious Matter, they without Violence discharge it by Vomiting; and, on the contrary, soon cure that stubborn and violent Vomiting wherewith hypochondriacal Persons are sometimes afflicted. So likewise, if the menstrual or hæmorrhoidal Flux be too large, stopped, or observes not its natural Periods, there is no better Remedy, hitherto discovered, than mineral Waters, for bringing these Disorders to rights.

5. Another singular Instance of the Design, Wisdom, and Goodness of Providence, in providing mineral Springs is, that

that they have this Advantage above most other Things, that they are not very subject to lose their Virtues, or fall to Ruin or Decay. For tho' this has sometimes happened, yet the more capital and serviceable Springs, of medicinal Use, have certainly retained their Virtue through the Course of many Ages, and afforded a sufficient Quantity of Water, even in the hottest Seasons, whilst other common Springs have been dried up. They have also continued to abound with the same Quantity of Principles, or Ingredients of the same Quality, in an equal Proportion of the Water. And lastly, though the Bowels of the Earth, through which these Waters run, are pregnant with Metals and Minerals, some of them prejudicial and poisonous to the Body; yet the Waters of these Springs dissolve and drink up none of this Kind: But, as if directed by an Appetite of Choice, impregnate themselves with only such Principles in their Passage, as render them highly agreeable to the Solids and Fluids of the human Body.

Since, therefore, there are so many Advantages derivable to Mankind from medicinal Springs, whence they were held sacred by the Antients, who can help wondering at the supine Indolence and Neglect both of Philosophers and Physicians, in not examining into their Principles, Operations, and Effects? The greatest Part of the Authors, upon this Subject, seem to have wrote hood-winked, so as not to have seen the real Principles and Ingredients of these Waters: But on the contrary, to have imagined in them Matters whereof they could trace not the least Marks or Signs. Whence it has happened, that not only the Physicians upon the Spot, but those likewise of other Countries, who had not the Opportunity of examining our Waters, have held them very suspect, precarious, and dangerous, and therefore advised their Use only to the robust, the strong, and the healthy; being very apprehensive of doing Mischief at least, if not occasioning sudden Death, by prescribing a Course of Waters which they thought abounded with the Principles of so many Minerals, opposite and destructive to the human Body, unless all the Parts thereof were perfectly sound and intire. In this Point, however, such Physicians have not acted consistently with themselves, for their Custom has been to make these Springs, as it were, their last Resource for the Cure of chronic Disorders, which had reduced the Patient to the utmost Extremity, after all other Remedies failed, as if Persons, who had so long laboured under inveterate Diseases, could be supposed to have their Viscera sound and untainted. Such Physicians, therefore, notwithstanding all the Darkeness and Distrust which may hang upon their Minds in this Matter, must acknowledge that mineral Waters cannot, at least, but be innocent, if they here do no Mischief; or highly serviceable, if they effect a Cure, in Bodies so worn out and weakened by a Distemper, though they should not understand the Reasons whereon the Thing depends.

And if I shall have made any useful Discoveries in this Subject, what led me to them was a firm Resolution, to take nothing upon Trust, nor measure the Skill of Physicians by popular Opinion; but myself to try, as far as my Abilities went, and examine every Thing by the Rules of Reason. And finding, by Observation and Experience, the superior Excellence and Usefulness of mineral Waters in the Art of Medicine, I thought myself obliged to prosecute my Enquiries with a Caution and Exactness, proportionable to the Importance of the Affair. Thus, by the with-holding my Assent to the received Notions upon this Head, and coming personally to examine into the true Nature, Principles, and Virtues of these Waters, by the Means of chymical and philosophical Experiments, I found the greatest Part of what had been said of them by Authors, to be false and fictitious. And being once thoroughly convinced of this, I held it incumbent upon me to oppose the Errors every where strongly prevailing to the Disadvantage of the Art I profess, and support my own Discoveries with all the Light and Strength of Reason I could give them. And, in the Course of these my Enquiries and Endeavours, I have happily discovered certain Springs of uncommon Virtues, and advantageously introduced them into Physic. And if others will proceed in the same or a better Manner, I question not but their Labours will be crowned with the same or better Success; which is what I earnestly wish for the Benefit of Mankind. *Hoffman.*

Dr. Stare seems to have been one of the first who was sensible that the popular Notions, with Respect to mineral Waters, were erroneous. His Observations are worth inserting. But I must observe, once for all, that I have seen remarkable Instances of the Effects of our own chalybeate Waters in some of the Cases mentioned by Pliny, as in the Gravel; but for Hysterics, promoting Fecundity, and preventing Miscarriages, they are not to be equalled by any Medicines, or Method I am acquainted with, and will very seldom fail of answering this good End, if the Case is retrievable by any Means whatever. This makes me very easily believe the Virtues attributed to the Spaw, and Pyrmont Waters, in the following Pages, to be real. But, I must confess, I never yet saw the least good Effect produced by either of these Waters, in any Case whatever, tho' I tried them in many Cases, till their Success, at least in my

Hands, contradicted the Character they have acquired, and made me, for that Reason, use them no more. I don't say this with a View of derogating from the Reputation of these Waters, but to shew, that they either lose their Virtues at this Distance from the Fountain, or, which is more probable, that the wholesale Dealers in Medicines have found Methods of counterfeiting these Waters, in such a Manner, that the spurious have the Appearance of the genuine, without the least Participation of their Virtues.

Dr. Jordis, a Fellow of the Royal Society, with whom I kept a Correspondence for above thirty Years past, practised Physic at Franckfurt, and often at Swabach in Summer-time? I desired him to examine the Spaw-Waters, and give me an Account of the Contents of that *Szaw-Brunn* or *Acidula* (so much celebrated for its Virtues, and Concourse of Persons of the greatest Quality). He gave me an Account of some Ores or ferruginous Parts, which he calcined and tortured in the Fire, to make them confess their sulphur Original; but, in all his Experiments, did not satisfy me that the Water held one Drop of an Acid by Distillation, &c. That which gave me the first Suspicion, that the chalybeate Waters did not contain any rough, or vitriolic, or acid Salts in them, proceeded from an accidental Use of a strong iron Water, in which I dissolved Soap, and found it lather and wash my Hands well; and then I used a Wash-ball and shaved with it, and tried several other Waters of this Sort, which did the same, and much better than some Pump-Waters.

I consulted my Palate, and tried whether I could discover any Sharpness or Acidity in our English Steel-Waters at Tunbridge, at Black-Boy in the Parish of Franfield in Suffex, Hamptead, Sunning-hill in Berkshire, &c. but I was so far from discovering any such Thing, that these Waters seemed rather to leave a sweetish Flavour or Fare-well behind: Thus many alcaly Salts, if nicely examined (of the fixed Kind) have affected my Taste.

I made Experiments with several Sorts of such Spirits as are apt to ferment with Acids; such as Spirit of Harthorn, of Sal Ammoniac, &c. but these made no Ferment, nor any Motion or Change in these Waters.

I considered the Diseases in human Bodies, which these Waters were prescribed, by Physicians, to cure, that they were often such as proceeded from sharp, acid, or acrimonious Causes, as Cardialgie or Heart-burnings, sour Vomitings, corrosive Diarrhoeas, Colics from Scurvies, and Stranguries; and that, for these Distempers, sweetening and alcalify Remedies are made Use of.

I consider these Waters, as containing in them the Properties of Iron; and I find by Experience, that it is most opposite to Acids, being one of their great Correctors, and therefore rather to be esteemed an Alkali.

1. Take some Filings of Iron, suppose a Dram, and pour on them about an Ounce of the milder Acids, such as Vinegar, Verjuice, or the Juice of Lemons, and it will destroy the Sharpness of these Juices: Or, if you pour on these Filings mineral Acids, as the very corrosive Spirit of Nitre, or of Salt, or what is called Oil of Vitriol, they will immediately lose their Acidity, be disarmed of their sharp Points, and by Evaporation give a Salt that will taste sweetish, and is by Chemists called *Saccharum Martis*, if duly prepared, which is safely given inwardly, and is esteemed a good Altering Medicine.

2. Steel beaten to a fine Powder is, without any farther Preparation, given inwardly with great Success for Stomachic Diseases, as in the Green-sickness, hypochondriac, and various other acid and acrimonious Disaffections.

I considered Milk to be a very proper and obvious Subject to bring this Controversy to a plain and unquestionable Decision. I made this Experiment with all possible Exactness: I first proved the chalybeate Waters, more particularly the Spaw-Waters, by trying whether they tinged with Galls. These being very good, I put Part of the Waters to cold Milk; some I only made luke-warm, and some I boiled together, in equal Proportions: But they were so far from affording any Curd or Coagulation, that they continued several Days without being four.

Since mineral Waters, especially those that are chalybeate, are of such important Use in Physic, and have gained amongst us so just a Reputation for their excellent Virtues, and are the greatest Refuge in very potent and obstinate Diseases, this has made me judge it a Work not unacceptable to Virtuoso's, especially those of the Faculty of Physic, to have this Medicine fairly examined, its genuine Properties asserted, and what was called an Acid, to be demonstrated an Alkali. Is it not a Sort of Justice due to the World, that the Germans who sent us over these Waters, with this false Character of four Waters, should banish this misguiding Term from their Spaws? It is from this Mistake, that their Physicians do prohibit the Use of all Manner of Læticinia, as if they were as noxious as deadly Poisons, whilst they are in a Course of their medicinal Waters.

Since this Prejudice has prevailed very much amongst most of our Water-drinkers in England, I do attest, that I have frequently

quently advised, in some Cases, Milk to be given daily in the Evening, through a whole Course of Steel-Waters, with good Effect: Nay, I do affirm, that some others could not bear the Waters without having a third Part of Milk, or more, mixed with them, and have continued them so for many Weeks, with good Advantage: Nor do I find the least Reason to prohibit the Use of Milk in a Course of Bath Waters, having been here above a Year and half, making the best Scrutiny I can into the Properties, Virtues, and Vices (if they have any) of these Waters.

Since our Experiments discover, that those Things, which are of a sweetening alcalifate Nature, do so very well agree with these mineral Waters, it will appear by the following Experiments, that Acids do very much disagree. I put but one Drop of Oil of Vitriol to a large Glass full of strong Spaw Waters, which, before the Addition of this Acid, did give a deep Purple to the Solution of Galls, but now would not give the least Tincture, though I put in four times as much of the Galls. From hence, I conclude, that the Virtues of the chalybeate Ingredients, which I take to be the Life and Soul of these Waters, were so far bound up or destroyed, as to have lost their cordial or corroborating Faculty; and that the Bile or Gall in the human Bowels could not be able to separate the chalybeate (which are the only medical) Particles, and mix them with the Chyle, in order to any End in Physic. Let this be a Caution to those that design to make these Waters pass better by Urine, that they do not make use of any Acids, it being a common Practice to use Spirit of Vitriol, Spiritus Nitri dulcis, &c. as a Diuretic; unless it should so happen, that they have a Design to take off, and divest them of their warm, cordial, or altering Power, and so to bring them near to common Water; which I must confess we are forced to do, especially in the Use of Bath Waters, in some hot inflammatory Cases.

I shall conclude with one short Experiment in Favour of our Alkalies; that if you put any alkali Salt, volatile or fixed, such as volatile Salt of Hartshorn, or of Sal ammoniac, or fixed Salt of Tartar, of Wormwood, or any other true Alkali, you will then destroy the above-named acid Spirit, recover the Virtue of the Waters, and dispose them to give their Tincture as they used to do in their natural State.

Having procured about a dozen Quarts of Pyrmont Waters this last Summer, I made some Trials with them. I found by the Taste that they contained a rich chalybeate Virtue, and also made a very brisk and lively Impression on the Palate, more grateful and spirituous, than the best Spaw Waters I ever tasted. The Spaw Waters are looked upon as most excellent, if they sparkle a little in the Glass: But these, in Summer Time, when poured into the Glass, nay, sometimes even the Bottle, as soon as the Cork was opened, and the Air was admitted, would make a notable Ebullition, somewhat like bottled Cyder, though this was soon over; but they did yet continue their smart and brisk Taste, and high chalybeate Relish to the last Drop, though we were some Hours in drinking them off. In the Winter-time, these Waters do not sparkle, nor ferment, at least mine did not; but they were not carefully preserved, being exposed in cold Cellars where our Beer or Wine stood in the Winter, and yet notwithstanding, they lost not the chalybeate Taste, and also retained a very pleasant brisk Gust. These Waters have been reckoned in the Number of the German *Acidule*, and some of my Friends, to whom I gave a Glass of the Water, have ascribed to it a sharp Taste, and have been ready to run away with a possessed Opinion of its being sour: But when I required them to call back that hasty Assertion, and to consider it better, whether that Taste was really sour or acid, they have been forced to recant, and confess, that the smart and brisk Taste misled them to call it Acid, or truly Sour. Thus Cyder, and soft Ale, when bottled, will give such an acute Affection to the Palate, when it is far from being sour: And even volatile Alkalies of Sal ammoniac, or of Hartshorn, may be made to give the like Pungency to the Tongue.

In order to a more nice Enquiry, whether any Acidity were discoverable in these Pyrmont Waters, we dropped in considerable Quantities, both of Spirit of Hartshorn, and of Spirit of Sal ammoniac, both justly prepared; but could not discover the least Luculation or Motion to appear upon this Conjunction, as it usually does with an Acid. I made a yet more nice and certain Examen of these Waters, by mixing Milk with them, sometimes in equal, sometimes in double Proportion; and in various Degrees of Warmth, both in lukewarm Degrees, and also with a boiling Heat; but I could not perceive any Curdling; but rather, on the contrary, the Water preserved the Milk from Coagulation, for four or five Days, even in September, it being hot Weather.

Take a very little Gall in Powder, about half a Grain, to a Glass of a Quarter of a Pint; this does in a Moment render it turbid, and make a dark Purple, especially if you stir it: but, if you drop the Powder on the Surface of the same Water, it then causes a fine blue Tincture. If you will make a very fine Tincture pleasant to the Spectator, take five Leaves of strong green Tea, put them into the Bottom of a Glass, holding

a Quarter of a Pint, and you will see those Leaves unfold themselves, and, in a Quarter of an Hour, tinge the Water with such a cerulous azure Blue, that few Vegetables do afford the like. We observe, that the longer these Leaves, or any other Styptics (which are the Precipitators) do stay together, the more they degenerate into a deep Purple, or even in to an atramentous Colour.

In Reference to the internal Use of these Waters, I drank about a Quart at a Time, after this Manner: I first began with the Spaw Waters, which I procured very good, and drank them for a Week, and they agreed very well. I then drank the Pyrmont Waters for three or four Days, and continued the Use of these Waters alternately, until I had drank about twenty Days. By the Result of my Experiment, it seemed to me very plain, that the Pyrmont Water was more agreeable, gave more Strength and Spirit, and was as much or more preferable for its internal Virtue, as for its excelling the other in a brisker and more sprightly Taste.

There is another Excellency in these Waters, which will make them more useful to us, than any foreign chalybeate Waters we yet know; because these will keep better, being not so soon spoiled by any accidental Insinuations of Air, as the Spaw are subject to be. The chalybeate Mineral is here thoroughly dissolved and well united, and mixed in the Water, so that it does not easily precipitate; for which Reason it may also the better pass the Vasa Lactea, and even enter into the Mass of Blood itself, and work the more considerable Effects. That this is not a bare Hypothesis, may be proved by this Experiment.

Having suffered the Spaw Water to be exposed in a Bottle which was half full, and unstopped twelve Hours, I examined it, and found it taste just like common Water; but the Pyrmont Waters, that were opened to the Air after the same Manner, tasted strong of the Mineral, and gave their Tincture as at first; nay, they continued thus for full two Days, and perhaps might have done so longer, but I thought that Time sufficed. I may fairly conclude, that, since the Spaw has been very beneficial to our Patients in chronical Diseases, these Waters of a much superior Virtue will surpass them in conquering many of our obstinate Distempers.

Having had lately some Discourse about a purging Quality contained in these Waters, I am now enquiring into the Truth of this Question, whether they in reality do contain any purging Ingredients or Properties.

I evaporated about a Quart of this Water *ad siccitatem*; I then poured on the Reliquiae some Rain Water, enough to dissolve and take up the Salts, and exhaled that Water, and had a Grain or two of the Salts, that tasted muriatic, such as most River and Pump-Waters give. It is well known, that the purging Waters have a very bitter Taste, and by the learned Dr. Grew, that Salt was called *Sal catharticum amarum*, which distinguished it from all other Species of natural Salts: That of the Pyrmont Water, above-mentioned, has no Relation to this, but to the Sea-Salt, not being in the least bitter.

It is also well known, that, unless our Waters be impregnated with a considerable Quantity of this bitter Salt, they will not purge at all: Two or three Grains signify nothing, nor have the least cathartic Power. For Example, put two Drams of the purging Salts to a Quart of common Water; and this Quantity will give but a Stool or two, to one who is naturally very easy to work upon. I have examined several other chalybeate Waters, and found much the like Ingredients, and never any that I could suspect to carry any purging Properties.

I think we can much better demonstrate, that the chalybeate Waters do contain styptic and restringent Virtues, because they owe their Birth to the Iron Mineral, and more particularly to the Pyrites, which Dr. Lister suggests (not without some Reason) to be the Parent even of all Iron Ores, as it is doubtless the Cause of all chalybeate Waters: Thus I have often examined the Solution of the Pyrites by the Rain-water at Deptford, and at other Places where Copperas is made, and found it a very strong chalybeate Water. It is from this Mineral we have our strong styptic and constringent Medicines, for external and internal Use; we have our Powders and Salts of Steel, or Vitriol of Mars, from hence; nay, even those obstinate and inveterate Diarrhoeas, which have baffled the Force of all Medicines, have, by a judicious Use of Tunbridge, and other Iron Waters, received a Cure.

But, notwithstanding all we can say, it will be retorted, that there is Matter of Fact and Experience against us, that the Waters really do purge at Pyrmont, where they are drank. This we do allow to be true, that Tunbridge Waters do not only purge, but sometimes vomit, when drank hastily, and in great Quantity; but our Physicians have corrected this Irregularity, and we hear of no such Complaints, where they observe a just Regimen. And we do all agree, that those Waters are in their own Nature binding, and do oft require some opening Medicine. The Quantities of Water drank at Pyrmont are very large, often two or three English Quarts. It is no Wonder that their Weight forces them through the Bowels; for any common Water drank hastily, and in such Quantity, will

will do the same. Whereas, if you take this Method, and will drink Pyrmont, or any other chalybeate Waters leisurely, viz. a Pint Glass in an Hour, or rather two Half-pint Glasses, you may drink three Pints in so many Hours, without Danger of losing them by Dejection. But if any one will be careful, and take this Caution with him, he will scarce fail of Success, that is, let him be very quiet and still, both in Body and Mind; the less he stirs or walks, the better he will pass off his Waters by Urine. And though this will appear a Paradox, especially to those Physicians, who practise abroad, and commend to their Patients much Action in Walking, yet I know I have both Reason and Experience on my Side. To avoid Prolixity, I shall not declare them at this Time, and shall only ask Leave to mention one Observation I have made, that none of our English Steel-waters do strike such a Purple as the foreign celebrated chalybeate Waters do; for ours do give a more turbid and dark Colour, and the worse the Waters are, the blacker Sediment they make. Those of Islington abound with a coarse Oker, the Mineral is not well dissolved, but gives an atramentous Colour; but the Pyrmont Waters excel all I have happened to examine in its bright cœruleous Lustre. *Stare's Dissert. Philos. Transf.*

An Examen of Mineral Waters.

The admirable Virtues, and extraordinary Efficacy of mineral Waters, both the cold, which are called *Acidule*, and the hot, named *Thermae*, in perfectly curing the most obstinate and inveterate Diseases, are so well known and attested, by long Use Time out of Mind, and an infinite Number of Experiments, as to put the Matter beyond all Question. But whence these Waters derive their sanative Power and Virtue is a Thing not so commonly known; and, really, there are very few who know how to search out the Elements and Ingredients, in which their wonderful Efficacy lies, by a chymical Examen.

Now there is no better Way to discover the Elements of medicated Waters, than by evaporating the Liquid by a gentle Heat, either in a Tin Vessel set over hot Embers in the open Air, or, which is better, in a glass Cucurbit, carefully saving the Liquor that goes through the Alembic, that the Proportion of the Solid to the Liquid may be obtained. If then the Evaporation be made to a Dryness, and the dry Mass, left in the Cucurbit, be accurately weighed, we have the true Weight of the Ingredients, which are of a more fixed Nature, and, though of a different Texture, must be examined.

First, then, a Solution of the Residuum must be made with pure Water that is distilled, which is always requisite for the more accurate Examen of Things chymically prepared, for many Spring-waters contain much of the Elements of Earth and Salt. In this Solution the Salt is separated, and the Earth remains, which is less soluble in Water. It is easy to know, whether this Salt be alkaline, by mixing it with an Acid, for then it forms a *Sal Tertius*, or neutral Salt; or with *Sal Ammoniac*, in which Case the volatile urinous Smell betrays it. Or it may be known, when a Solution of sublimate Mercury in Water is added to it, for then a yellow Powder precipitates; or if it gives a green Colour to Syrup of Violets mixed with it.

The Case carries a little more Difficulty, when the Salts, left after Evaporation, are not of one and the same, but of different Kinds: As when, for Example, alkaline Salts are mixed with those that are neutral, such are common Salt, or calcareous Salt, as *Aphronitrum*, or sulphurous Salt, which approaches to the Nature of *Arcanum duplicatum*, or vitriolated Tartar. Hence it may well be asked, How shall these be separated from one another? It must be done after the following Manner: Pour common Water on the dry Mass, and, after a gentle Agitation, let it run off. By this Means there will remain a saline Powder, not easily dissoluble, such as are all your middle Salts, for alkaline Salts readily dissolve in Water. There is another Way of separating neutral Salts from alkaline, and that is, by Crystallization; in which, if rightly performed, every middle Kind of Salt, best fitted to receive a solid Figure, first descends in the Form of Crystals, there remaining nothing but a lixivious Liquor, which swims a-top, and receives with more Difficulty a solid Form.

Here another Question will arise, viz. How may the genuine Nature and Properties of the middle Kind of Salts be found out? You are to know then, that no other Salts are conveyed out of the Bowels of the Earth in the Vehicle of Water, than either common Salt, or a Kind of neutral Salt, of a vitriolic and sulphurous Nature, being made up of the Acid of Sulphur or Vitriol, and a Sort of Salt, or Earth, of the alkaline Kind: The former, that is, common Salt, may very well be distinguished, partly by the Savour, and cubical Figure, which Crystallization gives it, and partly, by emitting, when mixed with Oil of Vitriol, a copious white

Fume, of a most penetrating Smell; the other Salt, which derives its Original from an universal, subterraneous, sulphurous Acid, is thus tried, viz. Mix two Parts of the same with one Part of Salt of Tartar, and one of Powder of Charcoal, and let them incorporate and fuse together in a Crucible over a melting Heat; there will then be produced a red Mass, of a sulphurous alkaline Taste, much resembling the Liver of Sulphur, and from which, with highly rectified Spirits of Wine, is extracted the true yellow Tincture of Sulphur, which stains Silver with a sooty Colour.

From a Solution of this Mass with Water, by an acid Liquor, is precipitated the true *Lac Sulphuris*; a manifest Evidence, that the mineral Sulphur, which is compounded of the universal Acid, and inflammatory Principle, is revived in this Process. I not only found this true, in all Salts procured by Art, which are compounded with the Acid of Vitriol or Sulphur, but also by Means of this Process produced a sulphurous alkaline Mass out of all the middle Salts, common Salt excepted, which are found in the mineral Waters, both cold and hot; but with this Difference, that, if the middle Salt be compounded of an alkaline Salt and the Spirit of Sulphur, the easier is the Fusion by Fire, which becomes far more difficult, if this Acid be united with a terrene, or gypseo-calcareous Element, such as is the Salt in what they call the *Aphronitre* which adheres to Stones.

Besides alkaline and middle Salts, there is, in very many of the cold mineral Waters, a vitriolic Salt, which is seldom of a fixed Nature, but, for the most Part, subtle and volatile. This same Salt is known to be in all Waters and Liquids, not so much by the Taste, as by the dark-purple and blackish Colour they receive from the fine Powder of Galls, or the Rinds of Pomegranates, or an Infusion of the Flowers of Pomegranates. The Volatility of the Spirit of this Vitriol, or rather of the Acid of this Mineral, which, in Conjunction with martial or oleaginous Particles, constitutes the subtle Salt of Vitriol, appears especially in this, that mineral Waters, which take a black Tincture from Powder of Galls, and drank make the Excrements black, if exposed a-while to the open Air in a warm Place, immediately lose their vitriolic Taste and Faculty of changing their Colour, which happens yet much sooner upon a gentle Boiling and Ebullition.

There remains yet something to be examined in mineral Waters, and that is their very subtle spiritous Element, which seems to be of an aereo-ethereal Nature, and to have an elastic Property. The Presence and Abundance of this are manifested, not only by the Vapour, which strikes the Nostrils, but also by their Effect on the Head in drinking. To this Principle also it must be ascribed, that mineral Waters, especially the cold Springs, poured out of one Glass into another, raise Plenty of Bubbles, which stick to the Sides of the Vessel.

But these Bubbles rise in still greater Plenty, and with more Force and Celerity from the Interstices of these Waters to the Superficies, when they are mixed in equal Proportion with Moselle or Rhenish Wine, or any other that contains a subtle Acid, and a little Sugar. For so they look well to the Eye, and become of a delicious Taste; the Vapours proceeding from them in such Plenty, that they seem to smother. This Effervescence, by which these Bubbles are principally raised, depends on the Conflict of the alkaline Salt, which prevails in mineral Waters, with the subtle Acid of the Wines.

This spiritous Principle, residing in the Waters, is also the Cause why Vessels, or Bottles, close stopped, when heated, burst with great Vehemence; a sure Evidence of the vast expansive Power of this very subtle Matter.

Moreover, the Existence of this spiritous Element, which ennobles mineral Springs, may very conveniently be tried, in a Vacuum, by Help of the Air-pump, in which so great a Quantity of Bubbles rises to the Superficies of the Vessel, that they seem like a Liquor heated to a Degree of Ebullition.

Such Springs therefore, as have undergone an Examen, and do not produce the like Effects and Phenomena, are to be esteemed of much inferior Virtue. For it is that most subtle mineral Spirit, which endues the Waters and their Ingredients with such extraordinary Virtues, so as not only with Speed to enter and penetrate into the very inmost Recesses and Emunctories of the Body, but to communicate greater Strength, and Power of Moving, to the solid Parts, and the Fibre Motrices, for the more ready Passage of the Waters through the tubulous Frame of our Bodies, by which not only the Vessels are cleaned and freed from all Obstructions, but the Secretions and Excretions of useless Parts are in an extraordinary Manner promoted.

But as there is no Spring-water, which does not afford something earthy, and hardly soluble, after Evaporation, so we find the same Thing in mineral Waters, whether hot or cold, even in those that have the greatest Reputation for medicinal Virtues. Now the Nature and Properties of this

gross Substance ought also to be inquired into. For there are various Kinds of Earth, through which the Waters take their Course, some Parts of which are easily taken up by Waters, because of their intestine Motion.

The Things, which get into the Pores of the Water, are chiefly these: Limy, okerous, clayey, and even stony Earths. The Matter of the limy Kind is known by its Effervescence with an Acid, and also by Burning, in which it acquires the highest Acrimony. If there be vast Quantities of this limy Earth in the Waters, especially hot Waters, it separates in cold Weather, and sticks to the Vessels and Pipes, that contain the Water, and, in a little Time, covers them over with a stony Crust, as we see in the Caroline Baths, which contain such Plenty of alkaline and limy Earth, that Stones of vast Bigness are formed in the Vessels and Pipes that hold them. If the Sediment, or Precipitate, which, after Evaporation and Crystallization of the Salts, remains in the Filtre, is of a yellow Colour, which, in Calcining, changes to red, it is a Sign of a martial or strong Matter, which never fails to exert its wholesome Operations on the Human Body, by its gently astringent and corroborating Virtue.

But this okerous Substance, though it takes its Colour from Iron, will not suffer a Solution by an Acid, because it is of the Nature of Clays. Many Waters are full of this Sort of solar and martial Earth, without any other saline and spiritous Ingredient, whence they are of no small Service in the Cure of Chronic Distempers, both drank and used as Baths. In this Class we may reckon the Spring at Freyenwald in the Marquisate, at Bibra in Thuringia, and Leuchstad in Meissen, whose corroborative, drying, and diaphoretic Virtues, especially when used by Way of Bath, cannot be too much commended.

If there be any Thing stony in mineral Springs, it may readily be known by Elutriation with a sufficient Quantity of Water, by which all the subtile terrecous Parts are dissolved; for its Weight carries it to the Bottom, and will not easily suffer it to be moved out of its Place.

Besides the hot and cold mineral Waters, in which it was our first Assertion that Alcalies predominate, there are also medicinal Springs, impregnated neither with Acid nor Alkali, nor capable of tinging Syrup of Violets, but containing only a Salt of a middle Nature, which may best be procured by Evaporation. Of this Kind, chiefly, are some Springs first discovered by me some Years ago in Bohemia, at the Town of Zetlitz, two Miles from the City of Tœplitz, whose Waters, are very bitter, laxative, and contain a considerable Quantity of a middle Salt, which is much of the same Nature and Virtues with Aphronitre, or artificial Epsom Salt. *Hoffman, Ohs. Phys. Chy.*

The following Particulars, relating to some of the principal mineral Waters in Germany, will, it is to be hoped, both encourage, and enable the Curious, who live near any mineral Springs, of which there is great Plenty in England, not yet taken sufficient Notice of, to examine into their Contents and respective Natures, that their Efficacy, in the Cure of Diseases, may be rendered more certain, and more generally known to the World.

1. As it is certain, that medicinal Springs, whether of the hot or cold Kind, found in different Countries, differ considerably with Regard to the Principles or Ingredients they contain; and again, in Point of Purity of the Waters, whence some become serviceable in one Sort of Distempers, and others in another; some of them useful in this Constitution, and some in that; it becomes a Matter of Importance, to determine the precise Virtues and Efficacies of different Springs, by the Means of sure Experiments. And to lead others into a regular and just Method of doing this, or of discovering such Springs, as are of greatest Efficacy for the Cure of Diseases in every Country, is the Design of the present Section. To render the whole Matter familiar and intelligible, we shall proceed in the instructive Way of Examples, rather than Precepts; and lay down Sets of Experiments, that we have ourselves made upon the Waters of certain Springs of the greatest Character and Reputation in Germany: Whence at the same Time we shall have an Opportunity of confirming their medicinal Virtues by Experience, and Instances of Persons who have drank them with Success; and thus of demonstrating their Virtues to be agreeable to the Contents, which our Trials manifest in them.

2. We begin with the Pyrmont Waters, which, on Account of their penetrating Nature, and quick Passing off, hold the principal Place among cold Springs. It is remarkable of these Waters, above all others, that the glass or earthen Vessels, filled with them at the Spring-head, and well stopped down, easily burst to Pieces, with considerable Violence, upon shaking, or being gently treated. So that, if Flasks of it are to be carried to distant Places, it is necessary not to fill them

to the Top; or else, to let them remain open for some Hours, that their volatile elastic Spirit may in some Degree fly off.

3. If these Waters be drank cold, upon an empty Stomach, in the Morning, they not only briskly strike the Nose with a subtile penetrating Vapour, that rises from them; but also render the Head giddy, as if the Person had drank too much Wine.

4. They sometimes operate by Stool; and this the more powerfully, when they are not drank at the Spring-head, but carried to some Distance before they are used. And the Matter they thus discharge out of the Body, is of a blacker Colour than happens upon drinking the Waters of other cold Springs. But they lose all their purgative Virtue, by being long exposed to the open Air; and in that Case do not tinge the Excrements black.

Dr. Slare finding, upon Evaporation, no bitter cathartic Salt in these Pyrmont Waters, will not allow them properly purgative; but attributes this Effect to their being drank hastily, or in large Quantities; in which Case common Water would have the same Effect. But, from the Account here given, they appear to be somewhat purgative, by Means of their volatile vitriolic Spirit; which is also vomitive, when it largely abounds in Steel-waters; as appears by an eminent Instance in the newly discovered strong chalybeate Waters of Passy in France. See *Hist. de l'Ac. Roy. An. 1720.*

5. If Tea-leaves, Balaustian Flowers, or powdered Galls be thrown in a Glass of this Water, it first acquires a blue Colour, which soon after turns to a Purple, and at length a Black: Which shews, that black Colour proceeds from a Concentration of the Purple; and that the blue Colour is nothing more than a faint and dilute Purple. But, if a little Spirit of Vitriol be dropped into the Water that is thus tinged, all the Colour presently vanishes.

6. If any acid Spirit, whether of the stronger Kind, such as Spirit of Vitriol and Aqua Fortis; or of the weaker, such as Vinegar, Lemon Juice, or Rhenish Wine, be mixed with this Water, it causes a manifest Ebullition, and throws up a large Quantity of Bubbles to the Top with Violence, and a vaporous Exhalation.

7. On the other Hand, if any alkaline Liquor, whether of the fixed Sort, as Oil of Tartar, or of the volatile, as a dilute Spirit of Sal Ammoniac be mixed with this Water, no observable Conflict or Ebullition ensues: But the Water only becomes a little thick and white. And if now Spirit of Vitriol be dropped into it, so as to saturate the alkaline Principle, the Water again becomes pellucid and transparent.

8. Upon mixing an equal Quantity of Cow's Milk along with this Water, the Milk does not curdle, but rather becomes more fluid; and is by this Means preserved from turning sour; which affords an indisputable Proof that this Water abounds not with an Acid.

This Particular is farther confirmed of these Waters by Dr. Slare; who found they did not curdle Milk, even when boiled, in an equal Quantity with it, but caused the Milk to continue several Days without turning sour.

9. If Syrup of Violets be mixed with this Water, it turns of a deep green Colour; which presently disappears again upon the Addition of a few Drops of Spirit of Vitriol.

10. Upon evaporating forty-eight Ounces of this Water over a gentle Fire, we obtained two Scruples of a dry Matter; one half whereof being put into a proper Glass, we let fall thereon thirty Drops of Oil of Vitriol; upon which there arose a strong Ebullition, and a fine rarefied Vapour that sharply struck the Nose, in the same Manner as when Oil of Vitriol is poured upon common Salt. Upon the other half of this dry Matter we poured some pure Spirit of Vitriol, which made a Conflict therewith, and turned it into a bitterish saline Substance; leaving behind a considerable Proportion of a chalky Earth, which, when washed in fair Water, no longer made any Effervescence with an acid Spirit.

11. Upon exposing several Pints of Pyrmont Water in a large Silver Vessel, for twenty-four Hours, to the open Air, we found it so much altered from its original State and Disposition, as scarce to be distinguishable for what it was, so sluggish and unactive it appeared. For to the Taste it had quite lost its mineral, brisk, and penetrating Nature, and became perfectly insipid. It was also changed in its Transparency, and became thick and turbid, with a fine yellowish Earth fallen to the Bottom. And when the Liquor, that floated above that Powder, was poured off, it no longer made any Ebullition with an Acid, nor turned black with powdered Galls, nor greenish with Syrup of Violets.

12. From these several Particulars it plainly appears, that the Pyrmont Waters very copiously abound in a pure, penetrating, elastic, mineral Spirit, whereon their principal and distinguishing Virtue and Efficacy depend. For this highly rarefied Principle, so long as it cleaves to the earthy and chalky Particles of the Water, assumes the Nature of an Alkali: But, being also joined with a subtile Irony Earth, it resembles the Nature

Nature of Vitriol, has a vitriolic Taste, renders the Excrements black, and makes an inky Tincture with Galls. Therefore, whilst this Principle remains in the Waters, it thus renders them extremely active and powerful in opening Obstructions, and promoting the Secretions of the Body. But, when once this Spirit is gone from them, all their medicinal and distinguishing Virtue and Excellence is lost, or goes off along with it. And as these Pyrmont Waters copiously abound with this spiritous Principle, and consequently have a strong Operation and Effect, it is evident that the Use of them is rather fitted to such as are of robust and corpulent Habits, than for Persons of a soft, delicate, and tender Constitution. Yet they may, with great Safety and Advantage, be drank by the Weak and Infirm, in a small Quantity, or diluted with other pure and wholesome common Spring-water. They are also very advantageously mixed with an equal Quantity of Milk, and thus become eminently serviceable to Persons troubled with the Gout and Scurvy, of which we have seen numerous Instances, in our long Experience of these Waters.

13. Next to the Pyrmont come the Waters of Egra; as nearly approaching them in Virtue. For altho' they do not abound so largely in Spirit, but are of a milder Nature; yet for this Reason they are drank with more Success, and at present are more frequented than the Pyrmont Wells: An immense Quantity thereof is also yearly sent to foreign Countries.

14. Upon pouring Spirit of Vitriol into this Water, there arises a manifest Ebullition, though not so large as in the Pyrmont Waters.

15. Upon mixing Oil of Tartar with this Water, it still remains transparent or limpid, without any Thickness or Foulness; whereas other mineral Waters generally turn muddy or milky, upon dropping an alkaline Liquor into them, on Account of the common Salt or chalky Earth they contain.

16. If this Water be fresh taken from the Spring-head, it turns purple with Galls; but alters not its Colour therewith, when carried to any great Distance; unless the containing Vessel were very exactly closed, which is a sure Indication that it contains extremely little, if any Thing, of an Irony Earth.

17. With Syrup of Violets it turns of a dilute Green, which shews, that the alkaline Principle rather predominates in it.

18. A Solution of the Vitriol of Iron, being added to it, throws down yellowish Clouds, or a dreggy Matter, to the Bottom; though this is rather owing to the Vitriol itself, that was added, than to the Water, which thus dissolves and spreads it, whilst the Acid of the Vitriol meets with the alkaline Salt of the Water, and lets go its fine Particles of Iron.

19. Upon distilling twelve Ounces of this Water, in Balneo Mariæ, we first obtained a perfectly insipid Phlegm, and twenty-four Grains of a dry saline Matter at the Bottom; upon this Matter we poured Oil of Vitriol, but there ensued no Struggle or Effervescence, nor any volatile Fume, which shews this Water contains no Proportion of common Salt.

20. Hence it is manifest, that the Waters of Egra owe their purging Quality to their large Quantity of bitter cathartic Salt, which is of a neutral Nature, in Respect to Acid and Alkali; and this purging Salt is yearly prepared from these Waters, by boiling, and sent away, in very large Quantities, to foreign Countries. The Salt has no Virtue different from that commonly called Epsom Salt, and if an Ounce of it be dissolved in a Pint of Water, it purges advantageously, or gives three or four Motions without Disturbance. These Waters are also highly commendable, on Account of the Subtlety, Lightness, and Purity of their aqueous Part; and may in this Respect be preferred to the Pyrmont Waters, which abound with a copious Oker, and a chalky Earth. It is therefore agreeable to Reason and Experience, that the Egra Waters are well fitted for carrying off Viscidities, especially in the first Passages, and washing away the obstructing Matters in hypochondriacal Persons, or those of an ill Habit of Body, and discharging such Matters by Stool; and, again, for opening Obstructions in the Blood-vessels of the Viscera, and dissolving any tough, clammy Humours lodged therein.

21. We next proceed to the Seltz Waters, which for their Excellence are celebrated far and near; and, on Account of the mild Manner they act in, are drank with singular Advantage, even in extremely weak and emaciated Constitutions; especially by consumptive Persons, or those of weak and unsound Lungs.

22. These Waters make an immediate Effervescence with any Acid, whether it be strong or weak, and if mixed with Rhenish Wine, and a little powdered Sugar, they bubble up in a violent Manner, with a crackling Noise and Fume, whilst the whole Mixture appears like frothy Milk.

23. When mixed with an equal Quantity of old Hock, they turn dusky, or appear of a brown, reddish Colour, in the same Manner as when Oil of Tartar, or strong Spirit of Sal Ammoniac, is poured into a generous White Wine.

24. The Taste of these Waters is not sprightly, penetrating, and tartish, like the Waters of other brisk mineral Springs; but somewhat lixivious upon the Tongue.

25. They turn not blue, or purple, much less black, with Galls, nor tinge the Excrements inky in the Course of drinking them.

26. With Oil of Tartar they turn milky, but let fall no Sediment to the Bottom.

27. Twenty-four Ounces of this Water, being gently exhaled away, left behind it a Dram and twelve Grains of a saline Matter, which being again dissolved in Water, and passed through Filtring-paper, afforded a Lixivium, from whence we obtained two Scruples of a pure alkaline Salt. To a Solution of this Salt we put a Solution of Mercury sublimata; whence a fine yellow Precipitate, or Turbith Mineral, gradually fell to the Bottom. We had also the Pleasure of seeing an Infusion of Rhubarb turned into a beautiful red Colour by this Solution.

28. This same alkaline Salt also, being mixed with Sal Ammoniac, bound up the Acid thereof, and set free the volatile urinous Part, so that it rose in Spirit, and briskly struck the Nose, which are all evident Signs of a fixed Alkali.

29. Having saturated twenty-four Ounces of this Water with Spirit of Vitriol, then gently exhaled away the Mixture to Dryness, we procured a Dram and an half of a neutral Salt, like to the Tartarum Vitriolatum.

30. We know of no medicinal Waters which so easily run into Putrefaction and Stench as these, inasmuch that the Bottle must be perfectly filled, exactly stopped down with Cork, and carefully pitched over, to preserve them sound.

31. If this Water be exposed to the open Air, in a wide Vessel, for twenty-four Hours, it intirely loses its original Taste, and becomes lixivious, as if Oil of Tartar had been dropped into it, and yet there falls no yellow Substance to the Bottom.

32. An attentive Consideration of these Phaenomena will clearly shew, that this Spring plentifully abounds with the Matter of a pure alkaline Salt, of which it contains a larger Quantity than any other in Germany. Yet it holds no bitter calcareous Salt, nor any Principle of Iron; whence it has no great purgative or astringent Quality, but principally operates by Urine. Again, this Spring is but sparingly supplied with the fine volatile mineral Spirit; and, for this Reason, proves of a very mild and gentle Nature. All which being considered, it follows, that these Waters are not only innocent, but may frequently be used with great Success and Advantage, even by such as are of the weakest Habit of Body; and particularly in scorbutic, phthical, and nervous Disorders. They may either be used alone, or, what is still better, mixed with As's, or Goat's-milk; which Method of drinking them I first, with good Success, introduced above five and twenty Years since, and numerous Physicians, with the same Success, have followed my Example. I think, I can assuredly affirm, that for diluting and washing off acid and ill-concocted Humours, correcting the ill Habit of the Blood and Juices in arthritical or gouty Persons, and for relaxing and restoring the contracted nervous Parts, there is not a safer, a surer, more immediate, and effectual Remedy, than the Seltz Waters drank with Milk.

33. We come next to the most noted Spring in all Germany, the Waters whereof are extremely pleasant to the Taste; and commonly called by the Name of the Tonnstein Waters.

34. These Waters have this in common with all other brisk and cold Springs, that they cause an Ebullition with Acids; and on this Account, when mixed with Sugar and tart Wines, froth up, like Milk, with a great Smoke and hissing Noise, thus discharging numberless Bubbles, as it were, in a thick Mist or Steam.

35. They afford no Tincture with Galls, but preserve their natural Clearness when mixed therewith, which shews they contain no irony or vitriolic Particles.

36. They turn Syrup of Violets of a faint Green, like all other sprightly cold Springs, which shews they abound with an alkaline Principle.

37. If Oil of Tartar be dropped into them, they presently turn milky, and let fall a light Sediment, which shews they contain common Salt, or somewhat of a chalky Nature.

38. By standing any considerable Time in an open Vessel, exposed to the Air, they also lose their pungent Taste and Transparency.

39. When evaporated in a pewter Basin, set over the Fire, there appears a Skin upon their Surface, exhibiting various Colours, which is a Phaenomenon that does not appear in other Waters of this Class.

40. Twenty-four Ounces of these Waters being evaporated to Dryness, there remained two Scruples of a solid Matter, which being again dissolved in fair Water, and properly dried, yielded one Scruple of Salt, and another of chalky Earth. The Salt was put into a Glass, and a few Drops of Oil of Vitriol poured thereon; which presently caused a great Ebullition.

lition, that sent out a thick pungent Vapour, exactly of the same Kind as arises from a Mixture of common Salt and Oil of Vitriol.

41. Hence it plainly appears, that the Tonnstein Waters contain little alkaline Salt, but a large Proportion of common Salt, chalky Earth, and mineral Spirit; whence they prove of a mild and gentle Nature, so as to act powerfully neither by Stool nor Urine. They may therefore, with Safety and Advantage, be used both in chronical and acute Distempers, either alone or mixed with Wine, so as to serve instead of Malt-liquors, which are very seldom proper in Distempers. They seem also capable of being still farther applied, with Success, in the Cure of hypochondriacal Diseases.

42. The Wildung Waters have a great Affinity with those of Tonnstein, and are commonly used rather in the Way of Diet, than Medicine.

43. They afford manifest Signs of an alkaline Principle, as making a Conflict and small Effervescence with Acids. They also appear plainly impregnated with a fine mineral Spirit, because, if long exposed to the Air, they lose their peculiar mineral Taste.

44. They afford no Tincture with Galls or Balauftian Flowers, and turn but lightly green with Syrup of Violets.

45. Twenty-four Ounces of this Water, upon Exhalation, afford us four Grains of alkaline Salt, and eight of an extremely white Earth, soluble in Spirit of Vitriol.

46. From these Experiments it may appear, that the Wildung Waters are of a milder Nature than any hitherto examined, and therefore highly proper to be used, either alone or with Wine, instead of the ordinary Drinks. And altho' they are not well fitted for overcoming obstinate chronical Disorders, or cleansing the first Passages, yet they may be employed to good Advantage, for tempering and diluting the sharp Juices in gouty and scorbutic Cases.

47. The Swalbach Waters being kept in Bottles but lightly stopped, they grow foetid, and deposit a yellow Sediment.

48. If fresh taken up, and mixed with Galls, they turn purple, and, drank at the Spring-head, tinge the Excrements somewhat blackish, which shews them inclining to an irony Nature.

49. They make an Effervescence with Acids, turn thick and milky with Oil of Tartar, and, if exposed to the open Air, intirely lose their grateful Taste and laxative Virtue.

50. Twenty-four Ounces of this Water left, upon Exhalation, almost two Scruples of a saline Matter, a third Part whereof was a Kind of Oker.

51. Hence it appears, that the Swalbach Waters are of a middle Nature betwixt those of Egra and Pymont, and may, by Reason of their fine mineral Spirit, and subtile irony Principle, not only promote the Excretions, by Stool or Urine, but at the same Time strengthen those Offices of the Parts, and consequently are of great Use in hypochondriacal Cases.

52. Though we ourselves have had no Opportunity of examining the Waters of the Spaw, yet we cannot omit giving some Account thereof, from the more eminent Writers upon them, but especially from Henricus ab Heer, who has wrote an elegant Treatise thereon, intitled *Spadacrene*, and partly also from the physical Essays of Vallerius.

53. If the Spaw Water be carried to any great Distance from the Spring, in well stopped Bottles, it lets fall, after some considerable Time, a small Quantity of Matter like yellow Oker.

54. A single Grain of powdered Galls will presently tinge an Ounce of this Water of a deep Purple, but, if the Water be first heated, it changes not its Colour with Galls.

55. These Waters do not curdle Milk, and, when mixed with Wine, throw up a hot Steam, almost like boiling Water, that smells very gratefully, and exhibits an agreeable Sight of sparkling Bubbles to the Eye.

56. This Water seems to intoxicate, but that Effect is commonly over in a Quarter of an Hour.

57. The Spaw Water is specifically lighter than common distilled Water, by one Grain in about an Ounce and a half.

58. Twelve Ounces of this Water yield, by Evaporation, a Grain and a half of a white Powder.

59. Supposing these Experiments just, it will appear from them, that the Spaw Waters are perhaps as light and subtile, as any of the cold Springs, their specific Gravity falling short of common distilled Water. And as they contain but a small Proportion of Earth, or saline Matter, and a large one of the universal mineral Spirit, it is easy to conclude, they must have great medicinal Virtues, which are very fully expressed by Henricus ab Heer, who principally recommended the drinking of them in Diseases of the Bladder and Kidnies, the Gonorrhoea, and venereal Ulcers of the Mouth and Tongue. But besides these Virtues, which seem peculiar to the Spaw Waters, they have others in common with the cold medicinal Springs.

60. The Buch Waters make a strong Effervescence with Oil of Vitriol, and turn Syrup of Violets of a deep Green, but give no Tincture with Galls.

61. Upon dropping a Solution of the Vitriol of Iron in-

to them, some light curdly Matter gradually falls to the Bottom.

62. Twenty-four Ounces of this Water afford, by Evaporation, twenty-two Grains of saline alkaline Matter, which, being again dissolved, gives sixteen Grains of pure alkaline Salt, and six of Earth.

63. Upon dropping Oil of Vitriol upon this Salt, there arose a violent Ebullition, but no Vapour at all, like what common Salt would have afforded.

64. These Waters, tho' drank in a large Quantity, do not purge, yet operate powerfully by Urine; but, if a proper Quantity of Spirit of Vitriol be added to them, it produces a Salt, that immediately gives them a different Taste, and purgative Virtue.

65. They are impregnated with a copious mineral Spirit, which, flying off, leaves them in a Manner insipid.

66. Hence it plainly appears that the Buch Waters excel, on account of their remarkable Purity, Lightness, and Subtlety; and by being impregnated with a saline Alkali, and a copious elementary Spirit. But because of their Adjacency to the Egra Waters, and the hot Caroline Springs, they are almost neglected by the Inhabitants; and the Physicians, who practise there, seldom prescribe them, except while the Course of Bathing is in Hand at the Caroline Springs. But 'tis somewhat strange that the Buch Waters, which, in medicinal Virtue, do not fall short of those of Seltz and Tonnstein, should not be exported to other Countries; especially as they keep excellently, when the Bottles are well stopped down. *Hoffman.*

We have hitherto examined such medicinal Springs as come under the general Name of *Acidulae*, which, in reality, owe their operative Matter in Part to an alkaline Principle. We next proceed to examine such as fall not under this Denomination, but are of their own peculiar Nature, and abound with very different Principles. And among these we shall give the first Place to such as receive their Virtue from an irony Substance, whence they have been antiently called *STEEL WATERS*.

Among Steel Waters, we reckon the Waters of Radeberg, Lauchstad, Bebran, Freyenwald, and Weissenburg; all which, if carefully examined, are found to contain no other visible effective Matter, besides a very fine Crocus of Iron, commodiously received and harboured in an exceeding light and elementary Water. For they do not manifest, nor so readily lose their copious, fine, spiritous Part, as the others above-mentioned; nor participate of an alkaline Principle; as neither making an Effervescence with Acids, nor turning Syrup of Violets green. They also differ from most other medicinal Waters in this, that they turn of a black Purple with Galls; and when long exposed to the open Air, or boiled, they let fall a yellow Sediment: Nay, the Matter they throw up manifestly exhibits to the Eye their peculiar Nature, and the irony Principle they abound with: For not only the Confines of the Spring are sometimes coated over with a yellow Oker, but the Insides of the Pipes are lined with the same Kind of Crust; and a like Substance they deposit after standing some Weeks. This okery Matter proves, upon Examination, to be no other than Iron reduced to a subtile Flower, or a natural Crocus Martis, like the artificial; as appears from hence, that it may not only by Calcination be converted into a true Crocus, but also, if mixed with an equal Quantity of Sal Ammoniac, and put into an ignited Crucible, there arise from it bright and fragrant Flowers, which, being collected and thrown into Spirit of Wine, afford an excellent Tincture of Iron.

To examine the medicinal Virtue of these Steel Waters, we shall find them endued both with an operative and strengthening Property, so as to be advantageously used, as well internally as externally. Thus, when drank, they loosen the Belly, but strengthen the Body and Stomach, provoke the Appetite, and may therefore be very safely and serviceably used in such Distempers, as give Way to any Preparations of Iron. Their external Use, in the Way of Bath, is very considerable, for strengthening and cherishing benumbed and motionless Limbs, curing Pains, Contractions, or Relaxations, and for drying and healing up old Ulcers. And tho' used for this Purpose in the Way of Bath, made but gently warm, yet they heat the Body, open the Pores of the Skin, and provoke Sweat; especially if the Patient goes directly from the Bath to Bed.

These Steel Waters are very common in England; there is scarce a County that is not furnished with several. Where there are Coal-mines, almost every Spring is impregnated with Steel, and the Waters discharged by the Soughs made for draining these Mines, deposit this Sort of Oker mentioned by Hoffman.

Our Ancestors attributed the medicinal Virtues of these Waters, to the miraculous Influence of some Saints, in Imitation of the Heathens, who dedicated particular Springs to the Gods. This is what Pliny means, in the Passage quoted above, when he says, the Gods are obliged to Waters for the Increase of their Number. In like Manner we may say, that the Saints are obliged to our Waters, for a Part of their Reputation.

This,

This however proves both the Antiquity of the Mineral Waters, and the Reality of their Virtues.

There are other medicinal Springs, which can neither be reckoned among the Acidulæ, Thermæ, nor Steel Waters; but are of their own peculiar Nature, and contain a pure, neutral, bitter, purging Salt. These kind of Springs are very rare in Germany, (and none of them known to this Day, besides those which I some Years since discovered at Sedlitz in Bohemia; and after having carefully examined their Principles, taught their Use, and introduced them with good Success) but very common in England; for those of Epsom, Dulwich, Northal, &c. and many others, appear of this kind. These will be taken notice of as their Names occur.

Before I came to examine this noble Water, it had never been of any domestic Use; only there ran a rumour among the Inhabitants that half a Pint of it would purge. There was this remarkable observed of it, that though in the Winter, and in rainy Weather the Spring flowed much freer than in the Heat of Summer, yet it always retained the same Taste, and, as I afterwards found, the same Virtues and Quantity of Salt. For an Instruction to others, who may happen to be less versed in the Examination of unexperienced Springs, I shall here deliver my whole Procedure on this Occasion.

1. I first poured a Quantity of the Water into a clean, crystal Glass, where it appeared perfectly limpid and transparent; but to the Taste proved remarkably bitter and saline.

2. I then let fall into it a few Drops of the stronger Acids, such as the Spirit of Vitriol, Spirit of Nitre, &c. but perceived no Signs of any Ebullition; and as it turned not green with Syrup of Violets, I was hence well assured it abounded with no alkaline Principle.

3. It did not turn purple upon mixing with Galls, which shewed it contained no iron Substance.

4. Upon mixing with Oil of Tartar it grew somewhat thick, as generally happens when any chalky Earth is harboured in Water.

5. Upon a slow Evaporation of twelve Ounces thereof, I obtained two Drams of a bitter neutral Salt, like that in England called Epsom Salt.

Upon the Strength of these Experiments I recommended the Waters to the Physicians near the Place, to be used instead of the rough and coarse Purgatives of the Shops, and intreated them to go upon a fuller Discovery of its Virtues; but scarce any one of them thought me worth their Attention, till a very favourable Opportunity happened to establish the Reputation of these Wells. For in the Spring of the Year 1721, when the Empress came to the Caroline Waters, she made use of those of Sedlitz, in the Presence and by the Advice of her chief Physician, whom I had acquainted with my Discovery, and before whom I afterwards repeated my Experiments. Upon which, we with Caution gave of the Waters to Persons labouring under Intermitting Fevers to great Advantage. This excellent Physician afterwards returning to Prague along with the Empress, recommended these Waters to the Nobility of Bohemia; upon which an immense Quantity of them was sent both to Prague and Vienna, where they were fully approved for purging advantageously, and strengthening the Stomach. And in the Autumn following, the Nobility and Gentry of Bohemia, who yearly flock to the Hot Wells at Toplitz, drank these purging Waters with great Success. And now the Fame of them reached to Dresden, Berlin, and others of the most considerable Cities, where at present they use the Sedlitz Waters as common as those of Egra.

But as the principal Virtue of these Waters resides in their Salt, and as the Carriage of them to distant Places is troublesome and expensive, I persuaded a Chymist of Toplitz gently to evaporate the Water, so as to obtain its pure Salt for public Sale; and the Event proved answerable to our Expectation; for he now yearly disposes of very large Quantities thereof, and sends it to distant Countries.

The Character of these Waters being thus established, I went upon examining more narrowly into the Nature of the Soil adjacent to the Spring; and the Search was attended with this Advantage, that we discovered another Spring near Seydschutz, not far distant from the Sedlitz, though it lies somewhat higher, flows in plenty, and has a bitter and more saline Taste. And it seems, upon the whole, unquestionable, that this Spring runs down to, and supplies the Water at Sedlitz. The Principles however of this Spring, and the Nature of its Salt, differ not from those of the other; for upon Examination they both exhibit the same Phenomena, though the latest discovered affords the largest Quantity of Salt, twelve Ounces thereof yielding two Drams and ten Grains, and six of a chalky Earth. The Reason seems owing to this, that the Spring which lies higher is less exposed to the Reception of the Rain-water than that of Sedlitz, which lying lower, may be easily weakened by the Rain, or the Admixture of other Waters.

As this Salt has a great Relation to that called Epsom Salt, we will here deliver the Experiments we made on both, the better to manifest the peculiar Nature of each. The learned Dr. Grew was the first who from the Waters of Epsom prepared such a

kind of bitter, purging Salt, and wrote an elegant Treatise on the Subject: But as twelve Ounces of the Epsom Water will not afford above half a Dram of Salt, 'tis certain that the Salt which commonly goes by the Name of Epsom Salt, and is sent into foreign Parts in large Casks, and sold for less than Sixpence the Pound, cannot be prepared from those Waters, but is rather an artificial Thing. And in Fact, 'tis not only prepared in England from the Bittern, or bitter Liquor that remains after the making of common Salt, but also at Leipzick, and other Parts of Germany, in very large Quantities. And it appears plainly, that a certain aluminous Acid, mixed along with the alkaline Earth of common Salt, is contained in the Bittern which affords it. But it is remarkable, that all Salt-springs do not yield this neutral purgative Salt, perhaps only because the Salt-waters do not run upon Beds of Alum-stone.

1. The Sedlitz Salt is of an opaque, snow-white, or milky Colour; but the Epsom Salt more transparent and watery; whence its greater specific Gravity, and Disposition to relent in the Air.

2. The Sedlitz Salt, whether in a solid Form, or dissolved in Water, tastes much bitterer and more nauseous than the Epsom.

3. Both of them, when thrown into an ignited Crucible, melt and lose one half of their Weight in a watery Vapour; but the Sedlitz Salt flows clear and thin like Water, whilst that of Epsom is more viscous and tenacious.

4. Neither of them in the least dissolves with the highest rectified Spirit of Wine.

5. Both of them melt along with Pot-ash and powdered Charcoal, into a Mass like the Hepar Sulphuris; but the Mass made by the Epsom Salt turns with Water of a much deeper green Colour than the other; and when the Solution is precipitated with an Acid, affords a much larger Quantity of Lac Sulphuris.

6. Both of them, when mixed with Vitriol, calcined to Redness, and put into an ignited Crucible, send out a Vapour like that of Spirit of Salt, and this Vapour is soon followed by that of the volatile Spirit of Vitriol.

7. With Syrup of Violets the Sedlitz Salt turns green, but the Epsom blue.

8. A Solution of either coagulates with Oil of Tartar; so that scarce any thing falls out when the Glass is inverted; but the Sedlitz Salt coagulates strongest.

9. In like manner a clear Solution of either becomes very turbid upon the Addition of Spirit of Sal Ammoniac, and affords a large Quantity of curdly Matter.

10. An Ounce of Water will dissolve an Ounce and two Scruples of Sedlitz Salt, but only an Ounce of the Epsom.

11. A rich Solution of the Sedlitz Salt appears of a yellow Colour; whilst that of the Epsom Salt remains limpid, without discolouring the Water.

12. The Crystals they both afford by Solution and Evaporation scarce differ at all, except that those of the Epsom Salt are larger and more beautiful, in some sort resembling Nitre.

13. The Epsom Salt, being kept for some Days upon a Sand-heat, loses its Transparency, and becomes in Appearance like that of Sedlitz; from all which it is manifest, that these two Salts have a great Affinity, as well in their Principles as their Nature and Virtue.

The Experience of such as have drank these Sedlitz Waters confirms them serviceable for washing off all crude, viscid, acid, bilious, and corrupted Humours, lodged in the Stomach and Intestines; and this in so safe, easy, and agreeable a Manner by Stool, that nothing seems better disposed, or more effectual for the Purpose. Other medicinal Waters, though they may move the Belly, yet require to be drank in large Quantities before they will operate, and therefore easily pall the Stomach; whereas these operate quick, and in a small Dose; so that three or four Tea-cups full generally prove sufficient, and the strongest Constitutions scarce require more than a Pint. There is also this Property attending these Waters, that they require not to be used for any long Time, but only for eight or ten Days at most, and that too intermediately. And as they exceed other purging Waters in the Quickness and Efficacy of their Operation, so their Wholesomeness and purgative Virtue recommend them before all other purging Medicines in Use; scarce one whereof but operates more or less than was intended, weakens the Patient, gives him a Sickness at the Stomach, and lessens his Appetite; whereas the Sedlitz Waters, though they purge briskly, have none of these ill Effects, nor occasion Dryness of the Mouth; but rather, by their Bitterness, relieve the Stomach, and provoke the Appetite. We can therefore assuredly affirm, that there is not in any Dispensatory, nor in all the Catalogue of Drugs, a Purgative that operates with such Safety, Efficacy, Agreeableness, Quickness and Certainty, as these Waters. And in case of hypochondriacal Disorders, I never found any thing so serviceable as this Water. And I have known several, who remaining highly collicive for many Years together, recovered, by the Use of this Water, the natural Habit of other Men in that particular. These Waters are also found eminently

serviceable in ill Habits of the Body, Obstructions of the menstrual Discharges, at the time when they first begin to stop, or towards the Decline of Life, in scorbutick Cases, in Dispositions to the Piles, against Worms in the Body; and in short, for curing and preventing many other Distempers, if drank with the necessary Rules and Cautions.

As these extraordinary Virtues of the Waters seem principally owing to their Salt, it is proper to enquire whether the Salt could not be obtained from them, so as to produce the same good Effects. It is certain that a Salt may be thus procured, which being dissolved in Water shall make that Water have some Resemblance with those of the Mineral Spring; but whether any Art can make the Imitation perfect, and in all respects equally serviceable with the natural Water, may be questioned. For it is evident upon Experience, that there is a great Difference betwixt such Mineral Waters as are taken up at the Spring-head, and such as are artificially prepared by dissolving the Contents of the small Waters, gained by Evaporation, in the purest Spring Water; for the artificial do not pass so readily through the Body, nor so effectually raise a languid Appetite, increase the Strength, nor purge so well as the natural. And this evidently appears in the present Waters; which being drank at the Spring-head, or elsewhere, out of Vessels well stoppt, have not only a bitterer Taste than if the same Quantity of Salt they afford were dissolved in a less Proportion of fresh Water; but also six Drams of the Salt will scarce purge so often as a Pint and a half of the Waters themselves; which contain but three Drams of Salt. Whence these natural Mineral Waters, besides the fixed saline Particles, intimately mixed therewith, are likewise impregnated with a subtle, though insipid, aerial Principle, that by its Fineness and Elasticity, forces its way through the slender Cavities of the Canal, and as it were, opens the Passages for the Water to follow it; in such a manner, as greatly to increase its Operation: And this is not only to be understood of purging Waters, but of all other Mineral Springs. For a free Access of the Air, and the Heat of the Fire, strangely alter, impair, and destroy the Connexion, Arrangement, and Mixture of the Parts, which give medicinal Waters their Virtue and specific Efficacy.

If therefore the Attempts of this kind should fail, we might have an Eye to the Production of some other Salt, wherewith to impregnate common Water, in imitation of the purging Waters. Thus Glauber's artificial Salt has some Resemblance with the Epsom Salt; and proves, if the Point of Saturation be exactly hit, a Salt of a neutral Nature, of a bitter Taste, and a purgative Virtue. But its Taste is much more pungent than either the Epsom or Sedlitz Salt, though it contains a larger Quantity of Water, insomuch that if laid upon a warm Sand-furnace, it melts and runs like a Water, and loses one third of its Weight. Again, if dissolved in an equal Quantity of Water, and exposed to the Air, it coagulates into a solid Mass. On the other hand, if Oil of Tartar be added to the Solution, it does not coagulate as the Sedlitz and Epsom Salts do. However, there are several other neutral Salts procurable, by means of Oil of Vitriol, not only of a bitter Taste, but also, when given largely, purgative; of which kind is the *Arcanum Duplicatum*, or *Tartarum Vitriolatum*. But then, again, the Bitterness, and purgative Virtue are much greater in the natural Salts, and their Parts more subtle, as plainly appears from hence; that these natural Salts readily dissolve in about an equal Quantity of Water; whilst the artificial require four times their own Quantity to dissolve them.

The *Tartarum Vitriolatum* here meant is not in any respect like that commonly sold in the Shops, though made of the same Ingredients. This is somewhat bitter, exactly neutral, and perhaps as good a Medicine in all Sorts of inflammatory Concretions as can be procured by Art. That of the Shops is very acid, and capable of doing a great deal of Mischief, and not of the least Efficacy that I could ever discover. See TARTARUS VITRIOLATUS.

Besides the above mentioned purgative Waters, that abound with a bitter neutral Salt composed of a chalky and an acid Principle, there are many others, as that of Ratzeburg, &c. which afford not only a calcarious Salt but a considerable Quantity of common Salt. And these kind of Waters are of considerable Use for cleansing the Stomach and Intestines of tough, viscid Humours, restoring the Appetite, promoting Digestion, and remedying such Crudities and Flatulencies, as produce spasmodic Disorders in the remote Parts of the Body. But it is not proper to drink them in any large Quantity, or for any Length of Time; whence they are less suited to those Diseases which seat themselves deep in the Viscera, and proceed from Obstructions therein; because a long Use of Waters is required to remove those Obstructions from the fine Canals whereof the Viscera consist. They may however be fitted to this Purpose by mixing and diluting them with other Waters.

There are other Springs, which, upon the strictest Examination scarce manifest the least Signs of a neutral or alkaline Salt, or of a mineral or irony Earth; and yet are highly valuable on account of their extreme Lightness and Subtlety: And of this kind there are several hot as well as cold Springs. A hot Spring of principal Note of this kind is that of Toplitz; where the

Waters are extremely hot, and nearly resemble the Piperine Springs in Rhetia, which continue to run from the Month of May, when the Sun begins to dissolve the Snow upon the Tops of the Mountains, to the end of September. And although these hot Waters of Toplitz hold not the least saline or earthy Matter, so that when mixed either with acid or alkaline Liquors, they preserve their natural Clearness, and after a total Evaporation leave no solid substance at the Bottom; yet they have considerable Virtues upon account of their Purity and Lightness: in both which respects they exceed even fine Rain-water: And hence they become highly serviceable in the way of Bathing, for the Cure of external Disorders; as in Contractions, Dryness, Rigidity, Stiffness, and Want of Motion in the Limbs; by relaxing and strengthening the Fibres, and giving a due Circulation to the Blood and Spirits. They also prove beneficial in this way, where the internal, tendinous, and nervous Parts are affected; as in hypochondriac Disorders, the Colic, the Asthma, Contractions and Distentions of the Limbs; especially if the Bath be not too hot, but lukewarm. Whence it is my constant Advice to have these Waters fetched home, and a Bathing-tub filled with them; because Persons cannot well bear the excessive Heat of the Bath; and therefore the Spring without the Town, commonly called the Sulphur Bath, is of much more frequent Use, and found wholesomer, though, excepting its temperate Heat, it is exactly of the same Nature as that within the Town. And as all Physicians agree that the lightest and purest Waters are the wholesomest, and as the Piperine Springs afford an eminent Instance hereof, no doubt but the Toplitz Waters, though drank cool, may prove serviceable in many Distempers; notwithstanding the Custom of drinking them is not introduced, any farther than the mixing of them with Wine.

This Subtlety, Purity and Levity, is also the true Reason of the Virtue and Efficacy of some other Springs in the Cure of Distempers; and particularly the Schlangenbad Springs of Hesse, which contain no saline, earthy, irony, or other mineral Principle, that can by any Art be extracted from them; and are no other than an extremely simple, pure and light Water, which nevertheless, both by drinking and bathing, has very remarkable Virtues and Effects. The same Reasons recommend the Schleusing Spring, called in the German Language, Withems-brunn; for these Waters have all the Marks of Purity and Excellence, and if put into the exhausted Receiver throw up abundance of Bubbles, do not grow thick, or precipitate any thing upon the Addition of Oil of Tartar, a Solution of Silver, or Sugar of Lead; but leaving all their Impurities in their Passage through the Sand and stony Beds, receive no change from the common Experiments of Galls, Acids, Alkalies, &c. and when evaporated, leave no earthy Substance behind them. Hence the purer and lighter such Waters are, the more they should be esteemed; as their Wholesomeness, and Power of curing many chronical Disorders depends thereon: For thus they are fitted for readily entering the finest Vessels of the Body, and for dissolving and carrying off viscid Humours.

From the several preceding Examinations we conceive it plainly appears, that Mankind are liberally supplied with medicinal Springs, of different Natures, admirably suited to the Cure of different Distempers. Thus, for Example, if the first Passages of the Body require to be cleansed of their grosser Excrements, there are numerous Springs that answer this Intention, beyond all Comparison better than the Medicines of the Shops: In particular, among the hot Springs are the Caroline, and those of Aix la Chapelle; and among the cold ones, those of Egra, Sedlitz and Ratzeburg. If ferous Humours are to be carried off by Urine, the Seltz and Embsene Waters answer this Intention. If weak Viscera want to be repaired and strengthened, the Pyrmont Waters do it effectually. If gross and viscid Humours are to be discharged, and the obstructed Viscera to be relieved; if weak Fibres require to be strengthened, and the Kidneys and Bladder to be freed from their stony Matter, the Antonian, Wildung and Spaw Waters are sovereign for these Purposes. If saline, sharp, and tartareous Juices, which cause the Gout and Rheumatism, require to be diluted and corrected, and the nervous Parts of the Body to be innocently relaxed and set to rights, the pure Waters of Schlangenbad, Seltz, &c. assist in the most effectual manner, especially if mixed with Milk. Lastly, if corrosive, bilious Humours are to be rendered mild and temperate, and the weakened Tone of the Stomach and Intestines to be restored, the Steel Waters, in these Cases, are of eminent Service.

The external Use of Mineral Springs is no less suitable to the various Disorders of the Body and its Parts: Thus, for Instance, when the Fibres of the external Parts are too dry, hard and crispy, bathing in the Toplitz, Embsene, Piperine or Schlangenbad Springs, relaxes, softens, and renders them pliable, better than any other Means hitherto known. Again, if the external Parts are too weak, slack and moist, the Steel Waters powerfully brace them up, dry, strengthen and confirm them. To conclude, when Swellings are to be dissolved, viscid and sluggish Humours to be dispersed or dried up, Blemishes and Foulness of the Skin, whether in the Form of Scab, Tetter or Ulcer,

Ulcer, to be removed ; the Caroline and Aix la Chapelle Baths are excellent.

Through the whole Course of our Enquiries into the Principles, Natures, and Uses of medicinal Springs, we have purposely avoided a large Apparatus of chymical and philosophical Experiments, and contented ourselves only with a few that are easy, simple and conclusive ; thus avoiding an Ostentation, which many have run into, and multiplied Experiments to no Purpose ; for it is Labour lost to examine these Waters by mixing them with common Salt, Nitre, Vitriol, Alum, Copper, Brimstone, Orpiment, and numerous other mineral Bodies, since no such Experiments can manifest to the Senses any other Principles than what we have in our simple Method discovered, as will be evident to such as are well versed in natural and experimental Enquires.

For the same Reason we have purposely omitted the Hydrostatic Trials of such as, by the Means of Water-poises, or Hygrometers, examine the specific Gravities of Liquors ; for though it might at first seem probable, that the Weight of Mineral Waters is thus discoverable, as it is in Wine, Malt Liquors, Urine, common Water, and Lixiviums ; yet whoever attentively considers it, will find this kind of Experiment very fallacious in Mineral Waters : For it appears by repeated Observation, that the Hygrometer plunged into these Mineral Waters, when taken first from the Spring-head, floats high, and shews their Gravity much greater than it is ; and that when the Day following it comes to be plunged into the same Parcel of Water, it sinks lower, and makes the Water seem lighter. And as no one that we know of had before taken notice of this Phenomenon, we examined into the Cause thereof, and found it owing to the Presence or Absence of the subtile, expansive, aerial Principle, that plentifully abounds in these Waters, when fresh taken from the Spring, and buoys up the Instruments, as if it were so much Air striving to get out, and rising in Bubbles ; but after this Spirit is exhaled, the Instrument no longer meets with the same Resistance which kept it from its due Station, and therefore sinks down deeper. Whence it appears, that the elastic Power of Bodies may pass for Gravity, or that the Power of Elasticity and Gravity are equal.

Neither does the hydrostatical Balance determine the precise Gravity of Mineral Waters, or the exact Quantity of their Contents, if we wait till this subtile elastic Principle is exhaled ; for then the Waters commonly become turbid, and the okery Parts fall to the Bottom, whence their true Gravity cannot be assigned ; much less can the Hygrometer examine the Gravity of Hot-well Waters, because all Waters rarefy, and become lighter with Heat ; inasmuch that if the Instrument be plunged into the Waters while hot, they seem to be extremely heavy, by making the Instrument float higher ; but much lighter when cold, by suffering it to sink lower. *Hoffman.*

THE OBJECTIONS TO MINERAL WATERS considered, and RULES laid down for rendering such WATERS safe and effectual in the CURE of DISEASES. From *Hoffman.*

I. Though the Virtues of medicinal Waters are great, and their Use extensive, yet they have this in common with all other Medicines, that their good Effects depend upon a proper Administration. To administer them properly, requires a Knowledge of the Circumstances both of the Patient and Distemper, so as judiciously to suit them in every Case. And after understanding the Distemper, its Causes, and the State of the Patient, there is nothing more necessary than a thorough Acquaintance with the Faculties and Virtues of medicinal Waters, and the Manner wherein they operate. The Sum of this Knowledge not only directs to the Choice of such Waters as are best appropriated to the Distemper ; but likewise so disposes and regulates their Use, that the desired Effect must necessarily follow. On the contrary, if these Particulars are disregarded, no Wonder if they who rashly advise the Use of Waters should thereby injure their Patients, unless by Accident. And yet it is certain that these Waters are but as an Idol to many Physicians, or a Thing whereof they, without sufficient Ground, believe and relate numerous idle Fables. Many, in this Particular, are guided by a childish Superstition, and apprehend great Danger from the Use of such Waters ; so that they prescribe them only in desperate Cases, or as a last Remedy in reputed incurable Diseases. But my Experience of them, in a Course of many Years Practice, besides the particular Experiments I have used to examine them, have convinced me that these Apprehensions are groundless ; that such Waters are at the same time the most efficacious and most innocent of all the Medicines hitherto discovered ; and that they never fail of Success, where the Physician knows how to apply them seasonably and in the true Manner. I will therefore here deliver what I have observed upon the imprudent and unskilful Use of these Waters ; the happy Effects I have observed upon the true way of employing them ; and the necessary Rules and Cautions for the Direction of others ; that none, if possible, may hereafter complain they have used this excellent Gift of Nature to their Prejudice, or in vain.

II. In order to strike at the Root of the Errors, which still prevail to the Discredit of Mineral Waters, we must here retouch the Ingredients whereof they consist, and by Means whereof they act. There are some who suspect most of the Ways of trying and examining the Nature of these Waters as uncertain or fallacious ; and it must be acknowledged, that there is no absolutely perfect Method of determining their precise Contents, by reason of the numberless Bodies they wash in the Bowels of the Earth ; but on the other Hand, no one, that understands the true philosophical and chymical Way of enquiring into Waters, will deny, that though we cannot precisely determine every Ingredient they may possibly contain, yet we may certainly discover and demonstrate the principal ones, and those whereon their Operations and Effects depend. But let it be here observed, that whoever thinks to gain any real Knowledge in this Subject by consulting the Writings of the Ancients, will find himself greatly disappointed, and receive nothing for his Labour but an absurd Collection of imaginary Principles ; and yet it is surprising, that even in the present Age, when such a great Light of Natural Philosophy is set up, there should be some, who, through a Veneration of Antiquity, a Love of Contradiction, or I know not what other Reason, obstinately cleave to the Opinions of the Ancients.

III. It is a prevailing Notion at present, among most of the Writers upon Mineral Waters, that they contain a Vitriol like to the common Vitriol of Iron, which is the Opinion of the better, or more experimental kind of Writers ; and in order to countenance this Opinion, they laboriously endeavour to prove, that Mineral Waters exhibit the same Phenomena as a Solution of that Vitriol in common Water. The Experiments they produce on this Occasion are these.

1. That Mineral Waters, and common Water impregnated with Vitriol, have nearly the same Taste.
2. That both of them turn purple, upon a small Addition of Galls.
3. That both of them turn to a kind of Ink, with a larger Addition of Galls.
4. That neither of them will curdle Milk.
5. That both of them grow thick with Oil of Tartar, and let fall a Sediment.
6. That the Earth they both afford upon Evaporation, as also the okery Sediment they spontaneously let fall, make a considerable Ebullition with Spirit of Nitre, and send out a Smoke in the same Manner as the Vitriol of Iron would do in the like Case.
7. And lastly, that the Salt, properly extracted from the insipid Earth, has a pale Colour, an irregular Figure, and produces the same Effects as Vitriol of Iron. And by these Arguments there are some who think they sufficiently prove the Existence of an actual Vitriol in Mineral Waters.

IV. But this Opinion rests upon weak Pretensions, which need not all of them be separately considered, because they make nothing to the Proof of the Assertion ; we shall therefore only consider the capital thing among them, which being overturned, the rest will fall of Course. No one who uses his Senses can possibly doubt but there is somewhat of a vitriolic Nature found in Mineral Waters ; for not only the Taste, but the Sight confirms it, by their turning inky with Galls, &c. But the single Question is, whether this vitriolic Matter be the same with the gross corporeal Vitriol in common Use ? Which has hitherto been proved by no Arguments nor Experiments. For the vitriolic Matter in medicinal Waters is volatile, but the common Vitriol fix ; so that their Nature and Operations are intirely different. Thus it is evident by numerous Trials, that the Addition of Galls to the Waters of hot mineral Springs causes but a very small Change of Colour, unless the Water be fresh taken from the Spring-head ; and when it has stood any time exposed to the open Air, it no longer changes Colour at all. It is true, that in the brisk Waters of cold Springs this Tincture appears blacker ; but here also the natural irony Taste immediately vanishes upon their being exposed to a gentle Heat, or the open Air, and then they strike a dusky Colour with Galls no longer. So that the strongest Steel Waters, even those of Pyrmont, when heated, or suffered to stand in the Air for twenty-four Hours, afford no Signs of a vitriolic Nature. Nor has any one of those who argue so earnestly for a solid Vitriol in Steel Waters been able, by their utmost Endeavours, from a hundred Pints of these Waters, to extract and exhibit to the Eye a single Grain of Vitriol. For though Helmont, in his fourth Paradox, declares, that by the Means of Distillation he obtained a Vitriol from the Spaw Waters ; yet this plainly appears to be one of his Pretences, as no other Person, by the same Operation, though ever so exactly performed, could obtain an actual Vitriol from them. The Conclusion upon the whole is, that these kind of Waters really contain somewhat of an irony Nature, which, being joined with a sulphurous Spirit, resembles common Vitriol only in the Taste and the Colour it gives, without any farther approaching to the Nature thereof ; and consequently that they err who, upon hearing the

the Name of Vitriol mentioned about these Waters, judge of them and cry them down, as abounding with the gross or common Vitriol of the Shops.

V. There is another Error deeply fixed in the Minds of Physicians, as if Mineral Waters, especially those of the cold brisk kind, contained an acid Salt, as their common Name Acidulæ seems to imply; and according to this Notion, their Virtues have been theoretically judged of, without Practice. This was the constant Opinion of the Writers upon this Subject, except Giorius, who, in the Year 1667, published a Treatise at Paris with this Title: *The Secret of the Acidulæ newly discovered, in which the common Opinion of the Acidity of Mineral Waters is overthrown*. But the Book itself no way answers to its Title; but is full of Vanity, and promises more than it performs. There have indeed been some who allowed of an alkaline Salt in Hot Well Waters; but no one before myself experimentally proved it true of the Acidulæ, or brisk and cold Springs. For though Henricus ab Heer, in his Account of the Spaw Water, expressly declares, that not only those, but most of the Acidulæ in Germany made an Ebullition, and yielded a warm Fume upon mixing with Wine, at the same time diffusing a grateful Odour, and throwing up numerous Bubbles to a considerable Height; yet this Author never suspected they abounded with an alkaline Principle, but declared himself for their containing an Acid. We have, in the preceding Pages, so fully proved the contrary of this Opinion, or the actual Existence of an alkaline Principle in these brisk mineral Springs, that it is needless to dwell longer upon it here. And the same we have also done with regard to their fine mineral elastic Spirit, whereon their Virtues have a great Dependence.

VI. We next proceed to consider the various Virtues of Mineral Waters, when used internally. And here we lay it down as certain, that their Virtues are greater and more numerous than those of any other Remedy, however specious or highly commended. A Knowledge of which Truth has given occasion to a considerable Error; for hence many have presently ascribed the particular Virtues of these Waters to the Ingredients they contained, without allowing any thing considerable to the pure Water, or Vehicle, wherein the more medicinal Parts reside. But when, upon full Examination, I found that neither the pure alkaline or neutral Salts, nor the fine elastic Spirit with which these Waters are impregnated, were able to produce such Effects, or work such Cures, separate from the Waters that contained them, I discovered that the Efficacy of Mineral Waters, both in preventing and curing Diseases, was in a great Measure owing to the Water itself; and that the other Principles served only to quicken or stimulate its Operation. And this will appear more manifest from an exact Knowledge of the Laws of Circulation, Secretion, and Excretion in the human Body; for as all the Juices of the Body require to be in a continued Motion, and as they necessarily consist of a large Proportion of an aqueous Fluid, it is agreeable to Reason and Experience that there is nothing in Nature which approaches nearer, or is more agreeable to them than Water; and accordingly there are several Instances of such, as by a daily Use of Water for their common Drink have prolonged their Lives to a great Age, and relieved themselves from stubborn Distempers. And no Wonder, since Water is a Fluid capable of preserving all the Juices, and all the Offices of the Body, in their proper or natural State, preventing the more subtle, earthy, saline and sulphurous Particles lodged in the Juices from introducing Putrefaction or Corruption, and capable of thinning and dissolving all the viscid, clammy, or tenacious Humours, that are apt to clog and obstruct the finer Vessels. In short, Water is that Fluid which assists and promotes all the Excretions by Stool, by Urine, by Sweat, and other Out-lets, so as to discharge and wash away all the Matters prejudicial to the Body.

VII. What adds a Confirmation to our Proposition is, that there are numerous Springs which afford no sensible Mark of containing a truly saline, or mineral Principle, and yet have medicinal and curative Virtues, which cannot therefore be justly attributed to any thing so much as the Purity, Thinness, and Lightness of the Water itself; but then as pure Water can have no considerable Effect, unless drank in a large Quantity, since when taken in a small one it often proves more pernicious than serviceable; and since to drink it in great Plenty might easily over-burden Nature, or prove too much for the Power of the Body to dispense with, and thus produce Stagnations, Extravations, &c. To prevent these Inconveniencies, nothing can appear more proper than to quicken such Water with some saline and active Matter; for such a Matter will not only stimulate the moving Fibres of the Body, and accelerate their Motion, but also help to dissolve any gross or viscid Humours adhering to the Sides of the Vessels, and obstructing the Circulation of the Juices. Hence it is manifest, that the additional Efficacy of Mineral Springs is considerably owing to such saline, active and spiritous Principles as naturally enter their Composition; though we should not attribute more to them than they deserve, or may by Experiment be demonstrated to perform.

VIII. From the same false Notion of the Effects of Mineral

Waters has proceeded another considerable Error. For there are many, even among Physicians, who conceive that the Wholeness and Virtues of these Waters can be no way so well judged of, as by the large Quantity of Ingredients they afford upon Evaporation, without considering that Fire is no trusty Operator in this Case; for by Means hereof only the more fixed Principles of the Waters are made manifest, and not their subtle ones, whereon it is certain that a Part of their Virtue depends. Thus the terrestrial, chalky Matter wherewith many Waters are loaded, rather hinders than promotes their desired Effect, especially when their Heat and spiritous Principle has left them. Whence the Waters of such hot Springs coming to cool, and stand for some time in the Air, if they are afterwards drank, they occasion many Disorders, and pass not so readily as when drank fresh from the Spring-head. And of this we have a remarkable Instance in the two Caroline Springs formerly mentioned.

IX. Since therefore Physicians themselves have run into great Errors, with regard to the Principles and Powers of Mineral Waters, it is the less to be wondered that, from such false and theoretical Notions, several absurd and pernicious Opinions should have spread concerning the Use of these Waters. These Opinions we come now to examine, after having thus prepared the Way. There are many who pass their Censure upon Mineral Waters from Hear-say, without having ever visited the Wells themselves, or been Eye-witnesses of their Effects; hence, after the common Manner of Men, they fancied numberless noxious Ingredients in them, and boldly ventured to declare them a kind of violent dangerous Remedy, which they currently stigmatize with the Name of a Horse Medicine, as a thing unfit to be used in any but robust Constitutions. But as great Authority as this Notion stalks about with, we shall make it plainly appear to be directly opposite both to Reason and Experience. And I would willingly know who can pretend that pure Water is a violent Medicine? For certainly there is nothing in Nature more safe or innocent. I would next ask, what Medicine the whole Art of Physic affords more safe than Salts, especially those of the neutral or alkaline kind? What is more mild or gentle, and indeed more serviceable in weak Habits than a subtle, astringent, or irony Earth, mixed with a kindly Salt, and kept dissolved in the lightest and purest Water? In the last Place, I demand what can possibly add greater Strength to the Body than a subtle, insipid, spiritous Fluid? And yet these are the active Principles, which, being kindly mixed in medicinal Waters, give them all their Virtue. And hence they are so far from violent, that all their Operations are performed agreeably, and without Disturbance, so as when they purge or vomit, to occasion no Loss of Strength, no Loss of Appetite, no Sickness, even when they work in their power-fullest Manner; but rather raise the Appetite, strengthen the Stomach, and recruit the Spirits. When they pass by Urine, they occasion no Strangury or Sharpness, but go off with a Degree of Pleasure. When they operate by Sweat, they do it without occasioning any Faintness, or other Disorder. Nay, we have seen Persons of both Sexes, of the tenderest Constitutions, and labouring under Fevers, Bleedings, &c. Women newly delivered, and brought to the weakest State, undauntedly drink the hot Caroline Waters without the least Disadvantage; but on the contrary, these Waters excellently promoted all the Secretions, strengthened the Faculties, and finished a Cure. And so innocent are these Waters, that Children and Women with Child may use them with Safety and Advantage; and Persons of delicate and tender Constitutions find them to operate with more Ease than the robust, and need use them but in a moderate Dose. It must however be allowed, that the drinking of these hot Caroline Waters, which are not of an agreeable Taste, in so large a Quantity as that of ten or twelve Quarts a Day, or in the Compass of a few Hours, is nauseous and disagreeable, especially to those unaccustomed to it; but from hence to call this a Horse Medicine, is arguing very unfairly and inconclusively; for it is no true Logic that would prove the Violence of these Waters from the Largeness of their Dose.

The drinking of Mineral Waters in such immoderate Quantities seems the peculiar Custom of Germany, and not advisable but upon extraordinary Occasions. We find in England, that two Quarts of the Bath Water is esteemed a large Proportion; and the general Stint is a Quart, or three Pints. A Flask of the Spaw or Pyrmont Waters, drank at several Draughts, is with us a considerable Dose; and four or five half-pint Glasses of the New Timbridge-wells at Islington, a Quantity generally sufficient. Shaw's Notes upon Hoffman.

X. But though Mineral Waters, with regard to their Nature and Virtue, are an extremely safe and gentle Remedy; yet it frequently happens, by the ignorant Advice of Physicians, that they become a Horse Medicine with a Witness; for it is the preposterous Custom of some, either upon the Day the Patient begins his Course, or the Day before, to prepare his Body for the Waters, as they call it, by giving him some violent Purgative. Surely whoever considers this absurd Procedure, will find it prejudicial almost beyond Repair. For such is the Nature of the

Stronger

stronger Purgatives of the Shops, as Coloquintida, Resin of Jalap, Scammony, Elaterium, Gamboge, &c. that by the virulent and caustic Principle, whereon their Action depends, they may intirely pervert or destroy the Tone and Strength of the Stomach and Intestines, and invert their natural peristaltic Motion, by the immediate Contact they have with those Parts. And how unseasonable this may prove, is manifest from hence, that nothing is more requisite towards securing the desired Effect of the Waters, than an unimpaired and intire Motion and Tone of these Parts; but the Use of such virulent and rough Purges is much more dangerous and fatal to those who are entering upon a Course of Cold Waters, by which all the Mischiefs brought upon them from such Purges are rather increased than removed, through the Coldness of the Water; whereas the hot Waters, by their Heat, in some Degree help to moderate these Disorders, resolve the Contractions, and restore the inverted Motion. But the greatest Mischiefe which arises from this violent Purging, and renders its ill Effects observable to the Eye, is, that in a Day or two after the first drinking of the Waters they do not pass so readily as they otherwise would through all the Strainers and Outlets of the Body, by Reason of the Constriction which such Purges leave behind them in the intestinal Tube and Parts adjacent, after the same Manner, as daily Experience shews, that the Body is bound up, or rendered more costive, for several Days after the Use of violent Purges.

XI. But as the Abuse of a thing should by no Means destroy its Use, we do not here condemn all Sorts of Purging, by way of preparing the Body for a Course of Waters; but only those of the violent kind, which have a pernicious Quality. Particularly it is necessary, in some Cases, before the Course, to take a gentle lenitive Purge, when the Intestines are clogged with a gross, viscid Matter, which might otherwise hinder the free Passage of the Waters, prevent their Effect, and bring on several Inconveniencies. The same Caution is likewise to be used when Bathing alone is the thing intended, to prevent fresh Disorders, which, through such an Omission, frequently happen, when Persons unwarily bathe in the hot Caroline Springs. But for this Purpose Choice should be made of such mild Purgatives as, without Disturbance, may cleanse the first Passages, viz. A Solution of Manna with Cremor Tartar, or half an Ounce of Epsom Salt, dissolved in half a Pint of Water, or a proper Quantity of any of the purging Waters, which may thus be taken to Advantage a Day or two before the Course is entered upon; but if the Body has long been costive, and the Excrements hardened in the Intestines, it is better to use an emollient Clyster or two, prepared of Mallow-leaves, Marsh-mallow-roots, or the like, boiled in Water-gruel or Milk, with the Addition of Oil and a little Salt; but for such whose Bodies are open, or have not the first Passages blocked by any large Collection of Humours, it is sufficient to dissolve in the first Glass of the Waters about three Drams of the Epsom Salt, which wonderfully facilitates their Passage. Lastly, they who are sufficiently laxative already require no Preparative at all.

XII. That Error deserves no less to be censured which leads Physicians, when the Course is over, to use violent Cathartics to purge off the Remains of the Waters, without a due Regard to People's Constitutions, or the Regimen necessary in this Case. It is indeed certain, and confirmed by Observation, that when Waters have been freely drank for a great Length of Time, they are apt to collect and stagnate in various Parts of the Body, but particularly in the Folds of the Intestines, and that such stagnant Waters should not be suffered to remain there, but rather be discharged. This however is not to be done imprudently, or with Loss of Strength to the Body, but by mild and gentle Means; whence it is the Business of a Physician to make Choice of such Medicines for the Purpose, as best agree with the particular Constitution, Temper and Strength of the Drinker; and upon this Foundation not absolutely to reject the Use of the stronger Purges, but to prefer such as act by no virulent Principle, yet have Strength and Briskness sufficient to perform the Work. And of this Kind are principally Manna, in a large Dose, quickened with any of the purging Salts, Extract of Rhubarb, or Extract of Aloes; all which being very easily dissolved by the Fluids of the Intestines, act briskly, without sticking to the Coats thereof, without vellicating them, or occasioning violent Gripings, Inflammations, &c. as Resin of Jalap, Scammony, and Gamboge, too often do, especially when given alone, or without their proper Correctives. But if any one is strongly attached to the Use of these violent Purgatives, as thinking them more efficacious, let them by all Means be given in a small Dose, and along with a Drain or two of the Epsom or other neutral Salt, to quicken their Operation, and carry them off; for it is now a thing well known, how much these kinds of Salts increase the Efficacy of the resinous Cathartics, insomuch that a single Grain of Scammony, or Resin of Jalap, when mixed along with ten or fifteen Grains of a neutral purging Salt, shall operate better than six Grains of such a resinous Substance taken alone; and this with greater Ease and Safety. But where a Person has naturally a robust and strong Stomach, or intestinal Tube, wherein there remains a large Quantity of

the stagnant Waters; then, without Dispute, a stronger Purgative is proper, and may be safely given, if the due Regimen be observed; that is, if the Body be well defended from all Cold, the Patient keeps in a warm Room, and, both a little before and after the Operation, drinks emollient Broths, Water-gruel, or the like, in order to defend the Stomach and Bowels from the corrosive Acrimony that might otherwise prove pernicious.

Riding on Horseback, or other proper Motion and Exercise, seems a good Expedient to prevent this ill Effect, and might therefore perhaps be properly used, at least after, if not during a Course of the Waters. But Dr. Stare is of Opinion that the Waters pass best if the Persons who drink them sit still, lie in Bed, or on the Couch. This appears just, with regard to their passing by Urine; but that not being the only Way wherein such Waters act, and it being necessary in some Cases that they should also find their Way through the Strainers of the Skin, and all the excretory Duets, gentle Motion and Exercise may be serviceable to that general Intention of the Waters, the making of them pass indifferently through all the Canals of the Body. Shaw's Notes.

XIII. There is still another Error committed by Physicians, with regard to Purgatives, in the Case of Mineral Waters; for most of them prescribe but one Kind in all Cases and Constitutions, as if Nature had framed all Bodies to be relieved by one and the same Medicine. Whereas it is certain, that to render Purgatives successful, they must be suited to the particular Constitution, Age, Sex and Disorder. Thus for such as have the Tone or natural Tensity of the Stomach and Intestines destroyed; such as are subject to Diarrhoeas, Women with Child, Women who have lately lain in. &c. the proper Purgative is Rhubarb. Where the Humours are sharp and acrimonious, where the Body is subject to the Gout, Rheumatism, or hypochondriacal Disorder, Manna and the neutral purgative Salts are best. Where the Bile overflows, in order to lessen its Quantity, and take off its Heat, there is nothing better than Tamarinds; but to invert this Order, and give the contrary Medicines in the same Cases, must needs produce different Effects.

XIV. There is a Question often started, to the Perplexity both of the Physician and the Patient, viz. Whether it be always necessary, after a Course of the Waters, to take a Purgative before entering upon Bathing? To which we answer, That it is not always necessary; for if the Waters have passed off kindly, without leaving any Signs of Stagnation behind them, either in the Feet, or Habit of the Body, and especially if the Cure be used only as preservative, there is no Necessity for fatiguing the Stomach and whole Body with repeated Purging. And to speak a plain Truth on this Occasion, the Physicians have rather an Eye to their Fees, than the Health of their Patients, in advising it. *I hope the German Physicians only deserve this Reproach; those of our own Country that I have conversed with being generally Men of more Honour than to enter into such mean Considerations so unbecoming Gentlemen and Christians. However it is no Part of my Business to defend every Individual of the Profession from an Imputation of unwarrantable Avarice.*

But the Case is quite otherwise when the Waters are not discharged in Proportion as they are drank, but actually remain behind in the Body; or when the Stomachs of hypochondriacal Persons are loaded with a Collection of viscid and acid Matter, from a Want of Digestion: In these Circumstances Purging must be recommended, unless we mean to expose the Patient to greater Danger by the Use of the Bath. But here also the Purges should be of the mild and gentle kind, such as Epsom Salt, Manna, Pilule Ruffi, Extractum Rudii, or the like.

XV. Having thus settled the Matter of Purging, we proceed to the Consideration of Bleeding, with regard to its Service or Disservice in the Case of Mineral Waters. There are still remaining amongst us many Physicians, who following Erasistratus, Helmont, and others of that kind, pronounce from Authority, without Proof, that Bleeding is a Remedy of all others the most disposed to let out the Treasure of Life, and draw away the Receptacle of the Soul, and therefore at once banish it the Kingdom of Physic. We shall not here enter into an Examination of this Opinion; but shew that Bleeding is often proper in order to receive Benefit from drinking the Waters, and sometimes so highly necessary, as not to be omitted without the greatest Danger. We do not however indiscriminately advise it to all Persons, but only to such as are too full of Blood and Juices; and particularly in the Case of Women, whose menstrual Discharges are stopped, either through Pregnancy, or some Distemper; and to those Men who are subject to an Haemorrhoidal Flux, and find it stopped. Again, to such whose Vessels, through the whole Habit of the Body, are full and turgid. And lastly, to those accustomed to high Living, and a plentiful Use of Wine, or have a florid Complexion, and a full corpulent Habit.

XVI. That the natural Fluids may readily pass through all the Canals of the Body, it is necessary that the Vessels should not be overfilled with Blood. Thus we plainly find by Experience, that in a full and florid Habit of Body the Pulse beats

low, and the Excretions move languidly; but as soon as a Quantity of Blood is taken away, the Pulse beats freer and stronger, and all the Secretions go on to better Advantage. If, therefore, whilst the Body remains full of its own Blood and Juices, the Waters should be drank in a large Quantity, they would not only move slower through the Vessels, but also stagnate and corrupt; and by Reason of this large additional Quantity, they may drive the Blood forcibly upon the more noble Parts, and thus produce Inflammations, Hæmorrhages, Obstructions in the Viscera, and many other Mischiefs, insomuch that Persons of this Habit of Body coming directly to drink the Waters, without taking away some Blood, run great Risques of their Lives. On the other Hand, Persons who bleed a Day or two before they enter upon this Course, have none of these Dangers to fear, but may drink the Waters with the desired Success; as is well known to those who have prudently observed the Effects of Mineral Waters. For it is a common Observation at the Wells, that Persons who found themselves ill upon first drinking the Waters, on Account of their not passing off regularly, but oppressing and incommoding the Body, so far as to determine them to quit their Design, yet having, by the Advice of another Physician, lost a little Blood, they have not only been soon relieved from their Disorders, but entered upon their Course again to great Advantage.

XVII. There are several Physicians who scruple prescribing the Use of cold Waters to such as have weak Nerves, for fear of weakening them still farther. It must indeed be acknowledged, and Experience manifests, that the most dangerous Symptoms are frequently produced in the Body from external Cold; and that this happens in a much greater Degree when the Cold reaches to the internal Parts, which are unaccustomed to bear it. Thus we have Instances where the whole Body being suddenly cooled, has occasioned Loss of Sight, and a Trembling of all the Limbs; where the Administration of a cold Clyster has caused immediate Death; with other Instances to the like Purposes. But for these Reasons totally to reject the Use of cold Mineral Waters, betrays great Weakness and Ignorance. All that they justly indicate is, if the drinking of such Waters cold occasions any bad Symptom, the drinking of them cold is to be forbid, and a Method of drinking them advised, which shall render the Water suitable to the weak State of the Body. And this I have for a long time very advantageously done, by directing the Bottles of the Water to be plunged in Balneo Mariæ, till they receive a Degree of Heat more agreeable to the Body and the Palate; a fine Hole being first made with a Needle in the Cork, to prevent the elastic Spirit, thus expanded by the Heat, from evaporating, and to keep the Bottles from bursting. Nor let it be apprehended that this Treatment of the Waters causes an intire Loss of the mineral Spirit, whereon their Efficacy depends; for as the Heat is not great, and as a proper Caution is here used, a sufficient Quantity of the Spirit is still kept in. And though there be no Need of farther Arguments, since Matter of Fact confirms the Truth hereof, yet we find that even the Waters of the hottest Springs, whose Heat is much greater than that here recommended, are not intirely destitute of this volatile, mineral Principle.

DISEASES wherein MINERAL WATERS are SERVICEABLE, contrary to the common Opinion.

XVIII. Having thus given the necessary Cautions and Directions, as well to Physicians as the Patients, with regard to entering upon a Course of the Waters; we now proceed to consider in what Distempers they are of more eminent Service than any other Remedy. But as the Catalogue of these Distempers is extremely large, we shall only speak to those wherein most Physicians rather think the Waters detrimental than advantageous; and shew the Erroneousness of this Opinion, both from Reason and Experience.

XIX. And first, the Use of Mineral Waters is held dangerous in violent Fluxes of the Menses and Hæmorrhoids. The Reason upon which Physicians proceed in forbidding Waters in these Cases depends upon a false Notion of the Causes of such Discharges, and of the Ingredients of the Waters, which they take to be metallic, vitriolic, and styptic; and having found by Experience that Astringents are very prejudicial in such Cases, they have forbid both the Use of hot and cold Waters therein. But as a Knowledge of the Blood's Circulation discovers the true Cause of these Discharges, and as the Apprehension of styptic Ingredients in Mineral Waters is groundless, this Opinion of theirs must be rejected as idle and frivolous. A careful Enquiry into the Cause of violent Hæmorrhages shews it to be no other than an Obstruction to the free Circulation of the Blood in certain Parts of the Body. And thus the Blood having not its due Motion through the Canals, impacted Matters are of Consequence generated in the Viscera, and the Obstructions necessarily rendered greater; whence the Blood coming to these obstructed Parts in a still greater Quantity, and finding no Passage, of Course diverts, and breaks its Way through other Parts, where it has either been accustomed to find Vent, or meets with the least Resistance when it comes to be discharged with

Violence in the Parts above mentioned. The first Intention therefore in the Care of these Disorders, is to open the Obstructions of the Viscera, and to restore a free Circulation of the Blood therein; and this can no other way be so effectually done, as by the drinking of Waters impregnated with a gentle stimulating Salt; for it is the Property of these Waters, by the large Quantity of their aqueous Part, to dilute and thin the stagnating Humours, and render them fit for Motion, whilst by their saline Particles they dissolve the Viscidities, twitch and shake the Canals, and cause them to press, protrude and squeeze forwards their Contents. This appears to be the Rationale of the Case; and thus in fact Henricus ab Heer expressly declares that the Spaw Waters are extremely well fitted for provoking the Menses, as appears by a thousand Instances, and yet are more successful than any other Medicine in stopping too large a Flux thereof.

XX. But that the Waters may with the greater Certainty and Advantage have this Effect, proper Care must be taken that the Body in such Circumstances be not charged with an immoderate Quantity thereof, but be drank in a small Dose, and not too hot. How necessary a due Regard to this Circumstance is, appears by an eminent Instance in the two Caroline Springs, where the Use of the most temperate of them, called the Mill-spring, has an admirable Effect in these Cases, whilst the common violently hot one rather increases the Disorder. It is also of great Importance, when the above mentioned Fluxes are large, that both before, in, and after a Course of the Waters, all Aloetics, and the stronger Purgatives be carefully avoided, which put the Blood into a violent Motion; and, if any Purges become necessary, to use in their stead those that are gentle, and of a strengthening Virtue, such as Epsom Salt, Rhubarb, Sena, &c.

XXI. And as these Waters have an extraordinary Efficacy in the stopping of Hæmorrhages, their Virtue is no less considerable in a Suppression thereof. And this Truth can be questioned by none but such as have never attended at the Wells; for as a Stoppage of these natural and critical Discharges of the Blood proceeds intirely from an Obstruction, or spasmodic Contraction of the Blood-vessels, through which it uses to run, Mineral Waters are wonderfully adapted to restore and promote these Discharges; it being the Property of such Waters to flow to the Extremities of the Blood-vessels, and there soften or attenuate the grosser Substances that block up the Passages, and force it away by the elastic Property of their aerial Spirit; and at the same time, by the large Quantity of their pure aqueous Part, they relax the hardened and contracted Fibres, and thus again open the accustomed Passage to the Blood. To confirm this Reasoning, we shall here insert the History of an extraordinary Case, whereof ourselves were Witnesses, and choose it as a singular Instance, out of a very large Number to the same Purpose.

A Person of Distinction, about fifty Years of Age, of a Constitution betwixt sanguine and bilious, long used to a Court-life, Wine, and a high irregular Diet, was seized with the Gout, and hæmorrhoidal Flux, returning at stated Periods; but without being much incommoded thereby, so long as he continued to open a Vein at proper Seasons. But being, a few Years ago, advised by some Physician or other to leave off Bleeding, under Pretence of growing in Years; and following this Direction, he was in the Summer Season afflicted with a violent Colic, extreme Costiveness, and Pain. His usual Physicians little suspecting the true Cause of the Distemper, ascribed it to the Gout struck inwards, and therefore rejected Bleeding as a perfectly useless or dangerous thing. Another Physician being called, and enquiring narrowly into the Cause of the Disorder, immediately ordered the Patient to have a Vein opened in his Foot, and to use emollient Clysters. Upon this the Violence of his Pain was immediately lessened, and growing better by Degrees, he was carried at the proper Season to the Caroline Waters; by the internal and external Use whereof, he happily recovered the periodical Return of his Hæmorrhoids and Gout, and was perfectly cured of his Colic.

XXII. From too large Discharges of the Blood-vessels, we pass on to the immoderate ones of the Lymphatics; the more common whereof are the Gonorrhœa and Gleet in Men, and the Fluor albus in Women. With regard to Distempers of this kind, many Physicians imagine that Mineral Waters are improper; but Henricus ab Heer, in his time, clearly remarked the Falsity of this Opinion, and declared that, how doubtful soever others might be in the Point, the Spaw Waters were certainly serviceable in the virulent Gonorrhœa, and produces Instances of his own Knowledge to confirm it. It is however certain that these kinds of Fluxes are generally increased by the Use of Mineral Waters, whence their Disrepute in such Cases seems to have proceeded. For whilst Physicians remained ignorant of the Causes of these Disorders, they attributed this Increase of the Flux to an Increase of the Distemper; but as the present Discoveries in Anatomy have given much better Light into the

Seat and Nature of such Distempers, it is proper the Cures of them should be regulated accordingly. An obstinate Gonorrhœa or Gleet in Men generally has its Rise from the unskilful Cure of a common venereal Running, which corrodes the Prostate Glands, and others belonging to the Parts of Generation, and renders them scirrhus and fistulous. An inveterate Fluor albus proceeds from an acrimonious Humour, generated by a too violent or frequent Use of Venery; or from a Humour introduced in the way of a communicated Taint, which afterwards infects the Glands of the Vagina, so as not only to make them discharge their Juice in plenty upon the adjacent Parts, but the same Juice being also infected, eats and corrodes the fine Fibres of the Parts it passes over, and thus occasions sharp darting Pains, Excoriations and Ulcers, whence proceeds the Matter of a virulent Flux. From this Account, which is taken from Dissections, it clearly appears, that in order to wash away, dilute and weaken these infected Juices, soften the hardened Glands, strengthen the Fibres that are fretted and corroded, and join them again with the other untainted Parts, a Course of Mineral Waters is highly proper. And though it be true that whilst the Course is in hand the Flux will increase, yet, when the Course is over, there ensues a more certain and confirmed Cure. But in order to this End, balsamic Remedies, and a moderate Decoction of the drying Woods, are to be used in the drinking of them, by which Means the Cure may be surprisngly facilitated.

XXIII. And no less serviceable is a Course of Mineral Waters towards the Cure of Distempers seated in the Glands of the Body, whether proceeding from Obstructions or Relaxations of the glandular Parts; for such Waters have a very opening, diluting, resolving, absterfing and strengthening Quality. To gain the better Credit to this Assertion, we shall here subjoin the History of a curious Case that happened lately.

A Portuguese Lady of a noble Family requiring of her Physician a Purgative by way of Prevention, he officiously prescribed her an Electuary, upon the Use whereof she soon fell into a violent Salivation, that continued for almost eight Months, till it had brought her to the extremest Weakness, and rendered her almost like a dead Carcass. The Caroline Waters were advised her, by the Use whereof, both internally and externally, with the Assistance of gentle Purgatives at proper Intervals, she not only got rid of her Spitting, but quickly recovered her former Strength and Beauty. It was remarkable in this Lady's Case, that after her Cure was compleat, she by sitting longer in the hot Bath than was directed, had nearly relapsed into her Spitting, and doubtless would have done so, if her Physician had not immediately prevented the Mischief by proper Purgatives.

I have inserted these two Cases, as being remarkable, though not properly belonging to the Article ACIDULÆ.

XXIV. It is a current Opinion, that the drinking of Mineral Waters proves prejudicial to the Lungs, and increases all the Disorders thereof. The Origin of this Error is apparently owing to a false Notion of the Ingredients of these Waters, and an improper Advice of them to such Persons whose Lungs are already ulcerated and eat away; whence the Ignorance of Physicians has pronounced them prejudicial in pulmonic Disorders. It is manifest by Inspection, and the Anatomy of tabid Bodies, that most Distempers of the Lungs arise from an Obstruction and Hardness of the Glands, wherewith this Part so plentifully abounds. Hence proceed inveterate Coughs, Phthisies, Difficulty of Respiration, Asthma's, &c. in all which Diseases the primary and sole Intention should be to open and dissolve away the Obstructions and Scirrhusities in the Lungs, that cause the Distemper; and this can no other way be so readily effected as by a Course of Mineral Waters. But to prevent their saline Acrimony, which is certainly unsuitable to the delicate spongy Substance of the Lungs, from doing any Mischief thereto, it is adviseable to mix the Waters with Asles Milk, which Experience shews is the best for this Purpose, or else with Goats Milk. And mixing the Waters in this Manner not only blunts and mollifies their saline Particles, but also conduces to temper and sheathe the Acrimony of the whole Mass of Blood, so as to render them eminently serviceable in Diseases of the Lungs. We have seen numerous Instances of their good Effects, so drank in these Cases.

XXV. What we have above said about the Diseases of the Lungs, may also be extended to the other Viscera, and Diseases of the Lower Belly. The Writings and common Discourses of Physicians are full of the Mischiefs which they suppose Mineral Waters bring upon the Viscera. And indeed the Use of these Waters cannot be recommended where the Viscera are consumed, or highly tainted; where the Humours are extravasated on account of Vessels broke either in the Thorax or Abdomen, or where Imposthumations are formed. To prescribe the drinking of Waters in these Cases, is to increase the Disorder, and hasten Death: But this Restriction does not reach to all the Diseases of the Viscera. The greatest Number of chronical Distempers, which come on slowly, and prove of long Con-

tinuance, proceed from an Obstruction in these Parts, and a Hindrance to the Circulation of the Blood; for the Prevention or Removal whereof there is nothing more serviceable than Mineral Waters, which preserve the Viscera in their natural State, and open Obstructions. Thus they are admirably preventive of the Scurvy, of the Asthma, of Abortion and Sterility, of the Dropsy and the Stone; curative of an ill Habit of Body, and lessen a present Fit, as well as repel an approaching one, of the Gout; and all this is attested by Experience and Observation. Whence it clearly appears how idle and childish that Fear is, which many Physicians indulge, of the pernicious Effects of these Waters; though it is true, they have always at hand certain ingenious Comparisons, and Instances of like Cases, as they call them, which they use on all Occasions, with a plausible Shew to the People.

XXVI. In the last Place, we shall say a Word or two of the proper Diet and Regimen to be observed in drinking the Waters. For as no Remedy, without a proper Regimen, can have its Effect, so a Course of Mineral Waters requires an exact Care in this Particular. There are two Errors generally run into by the Drinkers, viz. indulging themselves either too much, or too little. Some Physicians are so scrupulous as to forbid their Patients the Use of all acid, saline and spicy Meats, though perhaps these alone are pleasing and agreeable to them. But the Point of Exactness is, here, for every one not greatly to recede from his usual Custom, otherwise the Appetite may be hurt, Digestion not well performed, and Crudities and new Disorders generated. Others, who have a principal Regard to the Stomach, only advise the Use of spiritous and aromatic things, which is a great Hindrance to the Business of Excretion; for common Experience testifies that such things bind up the Belly. Above all, Voracity, and turbulent Disorders of the Affections should be prevented, as great Enemies to Digestion; whence the Body is loaded with an useless Weight, and the Waters rendered ineffectual for subduing and discharging the Crudities of the Body. The Stomach also will be weakened and relaxed by this Procedure, and the Waters now plentifully drank remain longer therein, and thus give rise to many Inconveniencies.

How destructive the turbulent Passions of the Mind are, appears from daily Experience in a State of Health; and unless well regulated, will prove more pernicious in a sick State, and a Course of the Waters, whereby the Humours and Foulness of the Body are put into Motion; so that Apoplexies, Palsies, and the like nervous Distempers, have proceeded from a Misconduct in this Particular. To conclude with a wholesome Admonition: Infirm Persons should not rashly venture upon a Course of Drinking or Bathing, especially without the Observance of a proper Regimen. *Hoffman.*

I shall conclude Hoffman's Account of Mineral Waters with his Method of imitating them; but I cannot much recommend it, being unacquainted with the Efficacies of Waters thus counterfeited. I should suspect their Virtues to be in no Degree equal to those of the genuine Springs. Experience may determine their Effects, and Experiments in this Case are more excusable, as Waters thus imitated can do no great Mischief, if applied judiciously.

I. As it is evident by the preceding Sections, that Mineral Waters, for the Prevention and Cure of Diseases, have no known Remedy comparable to them, as all Persons cannot have the Opportunity of frequenting the Wells, and as the Springs themselves are sometimes, though rarely, subject to Decay, it becomes a Question of Importance, whether, from a Knowledge of the Principles and Ingredients of these Waters, they may not be imitated by Art, or the more common Waters of every Place be impregnated so as to produce the same Effects? Many Chymists of the last Age held the affirmative; and in particular imagined, that cold Mineral Springs were easy to be imitated. But they certainly went upon a false Notion, which with many prevails to this Day, that these Waters owed their principal Virtue to a vitriolic Substance, and hence imagined that they needed but dissolve such a Substance in pure Spring-water, and the thing was done. But upon Trial they found their Error; for there is no solid Vitriol contained in these Waters. Nor is there a single Instance of a Spring, that we know of, holding a Salt so far like that of common Vitriol, as when dissolved in Water to turn inky with Galls, make a neutral Salt, or Tartarus Vitriolatus, with Oil of Tartar, and, upon evaporating, leave behind a Concretion, that, when ground with Nitre, yields the Fumes of Aqua-fortis.

II. To lay a Foundation for a more successful Imitation of Mineral Springs we must observe that there are some, both of the hot and cold Kind, which contain no saline or mineral Principle at all, and are nothing but a very pure, subtle and light Water; which, however, has very considerable medicinal Virtues. If such Spring-water as this be not procurable, we may perhaps to as good Advantage use in its stead the purest Rain-water.

III. There are certain Springs of a very light and subtile Water, containing no earthy or saline Principle, and only a small Quantity of an iron Substance; and these may properly be called Iron Waters; for they exhibit no Change to the Eye upon the Admixture of Acids or Alkalies; but, by standing or being heated, deposite a yellow okery Sediment. It is, therefore, no Difficulty to imitate this kind of Water by Art, where a sufficient Quantity of a pure, light and simple Water is at hand. The Method is only to boil it in a Glass Vessel, with a little of the more curious and subtile Oker sold in the Shops; by which means the Water will acquire a like Virtue, when used both internally and externally, as those of the natural Iron Springs.

IV. There are other Springs remarkable for the Lightness and Subtlety of their Water, which, besides a small Proportion of Iron Oker, hold a considerable Quantity of common Salt, whence they derive their principal Virtue. These Waters are somewhat purgative, and advantageously used in the way of Bath. They suffer no apparent Change upon mixing with Acids or Alkalies, and do not abound with a mineral elastic Spirit. Such Waters therefore may commodiously be imitated, by dissolving a little Sal Gem in the above mentioned natural or artificial Iron Water.

V. The Imitation of the cold and brisk mineral Springs is attended with greater Difficulty, if we would prepare them in such a manner as to have the natural, quick and pungent Taste, Smell, and copious elastic Spirit. I have, however, attempted to imitate them, by adding to the finest simple Water I could procure, contained in an earthen Vessel with a narrow Neck, first a little highly calcined and dissolved Salt of Tartar, next a little Spirit of Vitriol, so as to make an Ebullition, yet suffer the alkaline Principle to predominate; then shaking the Vessel whilst it remained close stopped. By this means I obtained a Water resembling the natural in Taste, and that threw up numerous Bubbles in pouring out. It likewise answered the natural Water in its Virtue and Effects; so that I have given it with great Advantage in such Distempers as required the drinking of the moderate, brisk, and cold Mineral Waters, where the natural ones could not be procured. But if the Design be to imitate the Pyrmont Steel Waters, which abound with an Iron Oker, either the natural or artificial Iron Waters should be chose for the Purpose, and a somewhat larger Proportion of Salt of Tartar, and Spirit of Vitriol be used; but so that the Alkali may still prevail.

There are Reasons to apprehend, that either this Expedient, or a worse, is practised at London and elsewhere, so as to imitate the Spaw, the Pyrmont, and other foreign and domestic Waters, in such a manner as to pass undiscovered upon ordinary Judges. If these Dealers had Art enough to make their Imitations perfect, the Deceit were the more tolerable; but as they commonly manage it, every Drinker, who cannot procure the genuine, had better make the artificial himself fresh as he wants it, which he may do by the Help of these Directions. And to those who are curious in this Particular, we recommend the purest Rain-water, and, instead of Spirit of Vitriol, the true Spirit of Sulphur. But for a Method of imitating these Waters, which comes still nearer to that of Nature, we think proper to intimate, that many Experiments and Observations shew the mineral Spirit, the specific Virtues, and iron Principle of Steel Waters to proceed from the Pyrites dissolved by such Waters under Ground. Whence perhaps Beds of these Stones might be laid on the Course of a pure Spring, so as to grow hot, steam, and richly impregnate the Water that runs near them, without turning to Vitriol. The Experiment is recommended to the Skillful in Chymistry and Natural History. *Shaw's Notes.*

VI. There are, besides these, certain purgative Mineral Waters, which, though they make an Ebullition with Acids, yet leave a bitter neutral Salt upon Evaporation. These Waters are to be imitated, in the same manner, by the means of Oil of Tartar, Spirit of Vitriol, and Epsom Salt, or that prepared from white Manganese and Spirit of Vitriol. And much after the same way may be artificially prepared a Water abounding with an exquisite neutral Salt, and capable of purging very effectually. The way is to dissolve, in the purest and lightest simple Water, a suitable Proportion of Glauber's Salt; or a still better Method is by mixing Oil of Vitriol with the white Manganese, so as to obtain from that calcareous Earth, and the vitriolic Acid, a Salt after the same manner as it is prepared by Nature, and then dissolve this Salt in the pure Water, so as to equal the Proportions of that proposed to be imitated; for Example, in the Quantity of about two Drams to twelve Ounces.

VII. Lastly, If any one desires to imitate the Caroline Waters, which are extremely alkaline, and somewhat purgative, he should endeavour to procure not a light and subtile Water, but such as is loaded with a calcareous Earth; and drop into this, first the Spirit of Vitriol, and afterwards the Solution of Salt of Tartar, till the Alkali manifestly predominates. The Spirit of Vitriol should be first poured in, that it may lay hold of the calcareous Earth, and therewith turn into a neutral and somewhat purgative Salt.

VIII. These are the ways, I have myself tried, to imitate the natural Mineral Waters for internal Use. And upon examining the Principles and Contents of these artificial Waters, they appear to hold not only the grosser, earthy and saline Substances, but also something extremely like the curious, elastic, mineral Principle of the natural Waters, proceeding from the Action and Re-action attending a State of Effervescence.

They likewise, upon Trial, appear to have great medicinal Virtues, so as to be, with desirable Advantage, exhibited for cleansing the Blood, and curing numerous Diseases, according to their several Intentions; though I cannot positively say, nor will pretend, that they come up to the Excellence of the natural Waters.

IX. It remains that we shew a Method of preparing Simple Waters for external Use, so as to supply the Want of Mineral Springs. We formerly intimated how, by the Addition of Salt of Tartar, Pot-ash and Herbs, wholesome Baths may be commodiously prepared; and shall therefore, in this Place, touch upon such as may be made by the means of Metalline Scoræ. The most common and useful of this kind are those prepared with the Scoria of Iron, which abounds with the earthy, saline and sulphurous Substance of the Metal. And these are of excellent Service for strengthening and bracing up the Parts, and recovering weak and decayed Limbs, stopping various kinds of Bleeding, and restoring the menstrual and hæmorrhoidal Flux, where obstructed; inasmuch that they may well be substituted for the natural Iron Baths.

X. Adjacent to the Smelting-Huts, where Metals are run from their Ore, are to be found large Quantities of the Slag of Copper, Antimony and Cobalt, which abounding with Sulphur, vitriolic Salt, and an earthy Principle, make serviceable Baths for strengthening the lost Tone of the Fibres, and relaxing them when they are too crisp. These Baths have likewise a deterfive and cleansing Virtue; so that, with Prudence, and a due Regard to Circumstances, they may be used on many Occasions. The way of making these artificial Baths, is either to take the Slags as they come hot from the Furnace, or else to heat them afresh, and throw them into hot Water, contained in a close covered Vessel, that they may communicate their Virtue to the Water, which is afterwards to be used either in the way of Bath or Fomentation occasionally.

To conclude, there are other artificial Baths prepared of Alum and Quick Lime, by boiling them together in fine Rain-water; and such Baths are highly serviceable in paralytic Disorders, and Weakness of the Limbs. *Hoffman by Shaw.*

Dr. Shaw has been more particular and intelligible in his Method of examining Mineral Waters than any former Author on this Subject. As I would enable every Body concerned in the Practice of any Branch of Physic, and all curious Gentlemen, to make successful Researches into the Nature of particular Mineral Waters, I shall insert the Method of doing it from the above mentioned ingenious and indefatigable Gentleman, without the idle Affectation of unnecessary Variations. And I presume the Importance of the Subject, to the Health and Welfare of Mankind, will render any Apology for the Prolixity of these Accounts of Mineral Waters superfluous.

I. Before we enter upon the Enquiry itself, it will be necessary to collect together the principal Instruments and Apparatus proposed to be used therein, that the Work may afterwards proceed with less Interruption.

II. And, first, the Mariner's Compass may be useful, in determining the Situation of the Well, and the Course of the Water to the Receptacle; because the Needle of this Compass pointing North and South (excepting for the Variation) the Enquirer may thence be enabled to lay down with Exactness the Course or Windings of the Streams, and the respective Situation of the adjacent Towns or Country.

III. For examining the Water itself, its Contents, and the mineral Substances found near the Confines of the Well, or Course of the Water, there will be required,

1. Exact Scales and Weights.
2. An hydrostatical Balance.
3. Variety of Glasses, common and chymical.
4. Cements.
5. A Thermometer.
6. A Hand-Pump.
7. An Air-Pump.
8. Microscopes.
9. An armed Loadstone, or touched Plate of Iron,
10. Distilled Water.
11. Crucibles.
12. A Melting-Furnace.
13. Fluxes, or Flux-powders.
14. Various Vegetables.
15. Animal Matters.
16. Minerals.
17. Artificial Substances.

IV. (1) The Scales should be of three Sizes, all of them well made, for weighing Grains, Drams and Ounces, or even a few Pounds; and the Weights employed should be Troy, which

which is the medicinal, or Apothecaries Weight; the Pound whereof is twelve Ounces, the Ounce divided into eight Drams, the Dram into three Scruples, and the Scruple into twenty Grains.

V. (2) The hydrostatical Balance is an Instrument, or a certain Species of Scales, contrived to weigh Bodies in Water, so as to determine their specific Gravity, as it also will do that of any Mineral Water, by weighing a certain Glass Bubble therein, the Weight of the Bubble in the Air and in common Water being known beforehand.

VI. (3) The Glasses to be procured are, 1. Such as may commodiously exhibit the Water to the Eye and the Senses, and should therefore be crystalline, and some of them cylindrical. 2. Such as may bear Heat, and serve for Evaporation; these should therefore be shallow, and widen upwards. 3. Such as may confine the Water, as common Phials, Bottles, Glass-Eggs, and Bolt-heads. And 4. Such as may serve for Distillation, as Glass-bodies, with Alembick-heads, or Retorts and Receivers.

VII. (4) By Cements are here meant those Matters, or artificial Compositions, which being applied to the Mouths of Glasses, tend to preserve the contained Water in a sound State, by keeping it from all Communication with the external Air, such as melted Rosin, Sealing-wax, or rather proper Mixtures of Wax, Turpentine, &c.

VIII. (5) A Thermometer is of Use to determine the Degree of Warmth or Coldness of the Water; being an Instrument consisting of a hollow Glass-ball, with a long and slender Neck or Stem, filled to a certain Height with tinged Spirit of Wine, and divided into Degrees along the Stem, so as by the rising or falling of the Spirit of Wine therein, to shew the Degree of Warmth or Coldness of any Fluid wherein the Ball is placed.

IX. (6) A small Hand-Pump, made either of Wood or Tin, with its proper Embolus, or Sucker, is necessary to raise the Water immediately from near the Bottom of the Well, to shew whether this differs from that taken up near the upper Surface; though other Contrivances may also be used for this Purpose.

X. (7) The Air-Pump, with its Glass Receivers, is a proper Instrument in helping to discover the Proportion of Air, or volatile, fugitive Spirit contained in the Water; for spirituous Waters are found to throw up, and discharge a large Quantity of Bubbles, when placed under the exhausted Receiver of the Air-Pump; and according to the greater or less Number and Size of the Bubbles thus discharged, the Water is judged to be more or less aerial or spiritous.

XI. (8) Microscopes, or Magnifying-Glasses, may be used in examining whether any visible component Particles can be found in a single Drop of the Water; but more successfully perhaps in determining the Figures of the Crystals, or Salts of the Water, after Evaporation, or during the time of Crystallization. It might also be proper to examine all the other solid or visible Contents of the Water by the Microscope, both in a State of Mixture, and after they are separated from each other.

XII. (9) The armed Loadstone, or touched Plate of Iron, is of use to discover whether any of the mineral Matters found near the Confines of the Well, or among the dry Contents of the Water, are of an irony Nature; for whatever the armed Loadstone, or a touched Iron Plate attracts, is generally allowed to be Iron. Though other Proofs of this should also be procured. And perhaps the Loadstone will not attract Iron in all States and Circumstances; as unless it be pure and perfect, or have all the Parts essential to malleable Iron; so that a mineral Substance may possibly be irony, though the Loadstone should not attract it.

XIII. (10) Distilled Water, or Water freed as much as possible from all mineral, saline, terrestrial, or other foreign Matters, is of use to discover the saline or soluble Contents of any mineral Substance, or dry Matter of a mineral Water, by dissolving them from the less soluble Parts, and giving them again in a solid-Form, by Evaporation, or Crystallization. The Water should be pure for this Purpose; otherwise it might mix its own mineral or saline Matters along with those of the Matter proposed to be examined, and so render the Experiment fallacious or uncertain. Now there is scarce a better way known of procuring Water in purity, than by gentle Distillation in clean Glass Vessels.

XIV. (11) Crucibles, or Melting-pots, made of an earthy, or stony Matter, are useful in trying whether the dry Contents of a Water, or other Mineral Substances, are metallic, or hold any considerable Proportion of Metal; for if they do, the Metal may usually be got out of them, by powdering the Substance, and, if necessary, mixing it with a proper Flux, then melting them together in a strong Fire.

XV. (12) A strong Fire is required to melt most metallic Substances, so as to separate the Metal from them; though, in some Cases, a Wind Furnace, that is, a Melting-Furnace, or Fire animated barely with a Current of Air, which it spontaneously draws to itself, is sufficient for this Purpose. But where the Matter proves stubborn, or hard to melt, a Fire

briskly agitated, or blown with a Pair of double Bellows, like those of the Silver-Smith, or Black-Smith, are usually required.

XVI. (13) Fluxes, or Flux-powders, are any kind of Substance, which being added to a Mineral, or Ore, and melted therewith, causes it to run easier, and yield its Metal sooner, or in greater Plenty, than it would do when melted without Addition. Thus Tartar, or Argol, Nitre, or Salt-petre, Borax; Glass of Lead, Iron-filings, &c. are Fluxes, and should be ready at hand, in order to the Examination of the Mineral Substances that may occur in the present Enquiry.

XVII. (14) Certain vegetable Matters are found to strike different Colours with different Liquors; and according to the Colour produced, an Indication is obtained of one or more particular Substances contained in a Liquor. Thus if fresh Violets be suffered to stand for some time in a pellucid Mineral Water, and the Water should now appear of a red Colour, hence an Indication would be gained that an Acid is predominant in the Water; but if a green Colour should thus be produced, this denotes that an Alkali prevails in the Water; but if the Water retains the native blue Colour of the Violets, this shews that the Water is neutral, or that neither an Acid nor Alkali prevails therein. The Principal therefore of those vegetable Substances, which have the Faculty of indicating, by a Change of Colour, the Contents of a Mineral Water, or other Liquor, should be procured, and kept in Readiness for our Purpose.

XVIII. These Vegetable Subjects seem reducible to four Classes, viz.

1. Such as are astringent.
2. Of a fine Texture.
3. Purgative.
4. Alterative.

XIX. (1) Among Astringents may be reckoned Green-tea; Oak-leaves, Oak-bark, Pomegranate-bark, Balauasian-flowers, Sumach, but more particularly Galls; all which are adapted to discover whether the Water be of an irony Nature, or contain any Particles of Iron, or the Vitriol of Iron. And this they do by turning such Water purple, black, or dusky; and, with time, precipitating a light, dusky Cloud, or inky Substance to the Bottom. The Galls for this Purpose should be of the blue, or strongest kind, sound, and newly reduced to Powder, which may be kept in a Glass close stopped. This Powder is used with greater Dispatch, Convenience and Exactness than a Tincture of Galls made in Water, which weakens their Virtue. The Tincture besides loses of its tinging Faculty by keeping, and at the same time acquires a deep Colour, which may disturb the Experiments.

XX. (2) Under Vegetables of a fine Tincture come the coloured or colouring ones, which have their Colours easily altered by simple Mixture; such as the Flowers of red Roses, Mallows, Violets, Bluebottles, Clove-Julyflowers, Lignum Nephriticum, &c. which serve to indicate, by the Change of Colour they produce in the Water, what kind of saline, or earthy Matters predominate therein. Thus, as was before observed, Violets turn a Water red where an Acid presides, and green where an Alkali; but communicate their own blue Colour where the Water is neither acid nor alkaline. And thus pure common Water being neither acid nor alkaline, an Infusion of these Flowers therein exhibits a beautiful blue Colour. And as pure crystalline Sugar also is neither acid nor alkaline, the Addition thereof to the Infusion of these Flowers introduces no Change of Colour; whence the Syrup of Violets may be commodiously substituted for the Flowers, in the making of our Experiments.

XXI. (3) The purgative Vegetables of Use in our Enquiry, are chiefly Sena, Rhubarb, Hermodactyls, Mechoacan, Jalap, &c. and this by the way of simple Infusion, Tincture, or Decoction, to discover some certain Contents, or solutive Powers of the Waters, but more particularly the Salts thereof; for alkaline Salts are found, in all Trials, to heighten the Tinctures, or Virtues of these purgative Ingredients, or make the Water take up more of their Parts, especially if they be unctuous, or resinous. Neutral Salts are also found to have the like Effect, in a less Degree, whilst acid ones are little disposed to open the Bodies of these Drugs, or make them yield strong Tinctures.

XXII. (4) Those commonly called the alterative, or drying Woods, as Guaiacum, Sassafras, Saunders, &c. may be likewise serviceable in this Enquiry, and help to discover the Contents of the Water, as they will yield their Virtues to some Waters better than to others; particularly to such as abound with a Salt capable of dissolving their resinous or unctuous Parts, wherein their medicinal Virtue principally appears to consist. And by this means also some new Uses of the Water may probably be discovered, viz. by applying it to the making of Infusions, Decoctions, or Extracts of various Drugs or Simples.

XXIII. (15) It is of Importance in the Enquiry to know how the Water affects the animal Fluids, or other animal Substances, as this may not only give Light into the Contents of the Water, but also afford Directions for its prudent Use, and shew what Effects may be rationally expected from drinking. And

here we should principally regard the Changes it produces in the fresh extravasated Blood of a healthy Person; in coagulated or dry healthy human Blood; in the Serum of sound Blood; in morbid Blood of various kinds, as that of rheumatic, scorbutic, pleuritic, consumptive, hypochondriacal, and maniacal Persons; upon the Calculus humanus, or Stone of the Bladder; upon Gall-stones; upon the Chalk-stones of gouty Persons; upon Matter, or Pus; upon Urine, recent, stale, and gravelly, &c. upon viscid Phlegm, gellied Lympha, and other sound and morbid animal Substances; especially as assisted with a Degree of Heat equal to that of the human Body.

XXIV. (16) It may be proper to mix different kinds of Minerals with the Water, to try if any remarkable Changes can be thereby produced, or the Virtues of the Water increased, or its Contents the better discovered. And in this View several Ores, especially the softer, or more soluble sorts might be used; especially Iron-ore, Mundic, Marcasites, or the Pyrites, as also Lime-stone, Alum-stone, Vitriol, Sulphur, and the Mineral Salts. Any of these Matters, if made to dissolve in the Water, might produce considerable Changes therein, or increase its Virtues, if they depended upon Contents of the same kind. Thus, for Example, if any Part of the Virtue of the Water should depend upon Iron, the artificial Introduction of more Iron might heighten the Virtue of the Water. And so again, if Vitriol, Alum, or Sulphur, be naturally contained in the Water, these Minerals might be added to it in a proper manner. So again it may be proper to try whether pure Silver will change its Colour, or turn black in the Water; or whether Lead, Quicksilver, &c. will any way dissolve therein, whereby a Knowledge may be gained of certain Contents, or Properties of the Water.

XXV. (17) The Head of the artificial Substances might admit of great Variety; but we will here single out the more necessary Particulars, under the Classes of,

1. Alkalies.
2. Acids.
3. Metallic Preparations, and Solutions.

XXVI. (1) By Alkalies are here meant what the Chymists called fixed and volatile alkaline Salts and Spirits. Fixed alkaline Salts are made, by boiling the white Ashes of proper vegetable Subjects, such as common Billet Wood, Bean-stalks, Vine-cuttings, Tartar, &c. in Water, to dissolve the Salt out of the Ashes, then evaporating the clear Solution till a dry Salt be left behind. Salt of Tartar is a principal Salt of this kind, and has considerable Uses in the Examination of Mineral Waters; for as it dissolves more readily and fully in Water than any earthy Substance, in proportion as it dissolves, the earthy Substance contained in the Water will fall to the Bottom; so that, by this Expedient, a large Quantity of the Earth of a Mineral Water may be separated, and made to assume a dry Form. And as this Salt is alkaline, if the Water be acid, some Conflict or Ebullition may be expected upon mixing them together; for this is commonly the Case when an Acid and Alkali are mixed. Or, by a prudent Addition of this Salt, so as just to take off the Acidity of the Water, a neutral Salt may be made, and, by a proper Treatment, rendered sensible, so as to afford a satisfactory Proof that the Water was acid. Salt of Tartar also readily runs, by the Moisture of the Air, into a ponderous Liquid, called Oil of Tartar per Deliquium, which may often be used with greater Convenience than the Salt itself, as it is purer, more easily unites with Water, and may be more commodiously dropped into it. But if either the Earth, or Acid of a Water, should be light, fine, or almost imperceptible, so as not to manifest themselves upon the Addition of a strong Alkali, a milder sort may be required, such as those called volatile alkaline Salts, or urinous Spirits, viz. the Salts or Spirits of Hartshorn, Blood, Urine, &c.

XXVII. (2) We must likewise be provided of those called Mineral Acids, or artificial acid Spirits; such as the Spirit and Oil of Vitriol, Spirit of Sulphur made by the Bell, Spirit of Salt, Spirit of Nitre, &c. for these Acids serve to discover whether the Water be alkaline. Thus for Example, as Oil of Vitriol is a very strong Acid, a Drop or two whereof will communicate a perceptible Acidity to four or five Ounces of common Water, if a Drop or two of this Acid give no perceptible Acidity to four or five Ounces of a Mineral Water, it will hence appear, that the Mineral Water is alkaline, or impregnated with something that has a Power to blunt Acids, or destroy their acid Nature, and turn them neutral. But where only a light, or subtle Alkali is contained in a Mineral Water, lighter Acids may be used for the Purpose, such as Lemon-juice, distilled Vinegar, Rhenish Wine, &c.

XXVIII. (3) The Metallic Solutions, or Preparations, usually made by Chymists, will be of considerable Service, not only as they may confirm the Conclusions drawn from other Experiments; but also discover still more of the Contents and Properties of the Water. Some of the most necessary ones are the following, viz.

1. A Solution of corrosive Sublimate in distilled Water.
2. A Solution of pure Silver in Aqua fortis.

3. A Solution of Quicksilver in Aqua fortis.
4. A Solution of Saccharum Saturni, or Sugar of Lead, in Water.
5. A Solution of Gold in Aqua regia.
6. A Solution of Copper, in Aqua fortis; and another of the same Metal, in Spirit of Sal-Ammoniac.
7. A Solution of Iron, in Aqua fortis; and another of the same Metal, in distilled Vinegar, or any tart Wine; the Uses of all which will appear in the Course of the Enquiry.

I. My present Design is to shew the Possibility of making an exact and satisfactory Enquiry into the Contents of a Mineral Water; for till this also is shewn, we shall not be prepared to enter upon the Enquiry itself; as the Business of examining Mineral Waters has not hitherto, that we know of, been reduced to the Form of an Art, or brought under the Laws of physical Demonstration. Some Attempts, indeed, have been made in this Way; but they are so imperfect as to leave many strong Objections upon the Minds of the major Part of Naturalists, Physicians, and Chymists. The Reason appears to have been this, that the Experiments hitherto offered, for determining the Contents of Mineral Waters, are generally slight and superficial, or by no means verified, and carried on in the Form of Induction.

II. By Induction we mean the Art of Enquiry, originally invented by the Lord Chancellor Bacon; and, in good measure, delivered by him (though never perfected) in the second Book of his *Novum Organum*. This Art is no more than a rational, or scientific Method of investigating or tracing out the Natures of Things, so as to manifest by what Laws, Means, or Actions they physically exist, and produce their Effects. It appears in all Respects to be the best, or most certain, if not the only true Art hitherto known, of promoting physical Knowledge, provided it be practised with that Caution, and according to those Rules which itself delivers. The principal Uses of it are to shew what Method should be observed, and what Experiments or Observations are to be made in every Subject; how they are to be applied, what Particulars they bring to Light, or what Discoveries they afford; nor does this Art obtain its End, till certain Axioms, or general Conclusions are formed by its means, comprehending the Nature of the Subject, and directing to an extensive Practice upon it. This Art, therefore, consists in a prudent and suitable Use of the Invention, the Memory, Reasoning, and Experiment, all improved and assisted to the utmost; where Invention directs the Articles of Enquiring, Reasoning directs the Experiments, and the Experiments, when made, inform and farther direct the Invention and the Reason, so as to point out other Experiments, till the Nature of the Subject is fully discovered. Thus, in the present Undertaking, this Art has directed the Invention, the Reason and the Memory, to cast about, and suggest, the first Heads of Enquiry, and the Experiments to be made; but can proceed no farther till the Experiments themselves are made, or the Answers gained from Nature to the Questions proposed; after which, the Reason, from the new Light acquired, may direct farther Experiments, till thus the Enquiry is brought to a Conclusion.

III. The present Business is, therefore, to explain the Nature of the necessary Experiments, with the way of conducting them, according to the Art above mentioned, that they may give a clear and just Information, and not lead us into Error and Confusion; but to do this in the amplest and most satisfactory manner, would require an Exactness, or Scrupulousness of Procedure, which might disgust any but mathematical Readers, and draw us into a Length unsuitable to the present Design. Though, as the thing is of the utmost Importance, not only to the present Enquiry, but likewise to all others of the like kind, it may be proper to dwell a little upon it, with a View to shew, by way of Example, what Rigour is required, and what Evidence, or Proofs may be had in physical Enquiries, and the Examination of Mineral Waters.

IV. The End of our present Enquiry is, to discover the Contents, Virtues and Uses of a certain Mineral Water; but as the Virtues and Uses of this Water must necessarily depend upon its Contents, Ingredients, or the Parts whereof it consists, the principal Drift and Scope of the Enquiry must be to discover, or, as far as possible, to manifest these Contents, and bring them under the Cognizance of the Senses or Reason.

V. And here it comes first to be considered, from the apparent Nature of the Thing, and from some Knowledge of the Properties of common Water, and the Substances capable of dissolving therein, with what kinds of Matters the present Mineral Water is likely to be impregnated. Now it is self-evident, that the Contents of every Water must be such as are capable of lodging therein, without hindering its Transparency, and without giving it Properties different from those found in it by the Senses, or particular Experiments, otherwise it would not be the Water it is.

VI. Mineral Waters are generally understood to be those running Waters, which receive any remarkable Quality or Property in the Earth, whereby they differ from common Water,

ter, and thence become either more beneficial than that, in the Cure or Relief of certain Diseases, or else more noxious or prejudicial to the Body. By which Definition, the Contents of Mineral Waters seem, as the Name imports, limited to Subjects of the Mineral Kingdom. But as just Definitions can never be given, till the Natures of Things are discovered, we shall make no farther Use of the present one, than to direct our Enquiry more particularly to the Discovery of Mineral Matters in the Water; though without neglecting such as may be of a vegetable or animal Nature: For as vegetable and animal Matters plentifully abound in the Earth, and may lie in the Course or Confines of a Spring, it is not impossible that certain Parts thereof should, at some Times, or in some Places, mix with the Water.

VII. But, to shorten our present Labour, it may be proper to contract our View, and here limit ourselves to such things only, as Water is commonly known to dissolve, and such as have been found, by competent Trials, to exist in Mineral Waters; for we do not here undertake to write a System of Natural and Chymical Philosophy, but to shew the way of pursuing a particular Enquiry into Mineral Waters, by means of suitable Experiments.

VIII. The Bodies capable of permanently dissolving in Water, without hindering its Transparency, and such as have been found to exist in Mineral Waters, seem reducible to four Classes, *viz.*

1. Salts.
2. Earths.
3. Sulphurs.
4. Fumes, or Spirits.

Now the Question here is, whether Natural Philosophy and Chymistry, even in their present States, may not supply ways of discovering, with physical Certainty, if any of these are or are not contained in a Mineral Water. From several Observations and Experiments, which we have ourselves made, and some also that we have read, we incline to think this possible, and now proceed to lay down the ways wherein we judge it may be effected.

(I) SALTS.

IX. All true Salts dissolve in Water, this being one of their essential Properties, or Characteristics; and as there are few Mineral Waters but what, upon a common Analysis, are found to contain a saline Substance; and as the principal Virtue of these Waters is sometimes found to reside therein, a primary Regard should be had to discover, whether a proposed Mineral Water contains any Salt, to determine the Species thereof, if known, assign its Proportion to the Water, or to the other Ingredients, describe its particular Properties, Virtues, and Uses, and produce or exhibit such Salt, or Salts, in their natural or true Form and Appearance.

X. The natural Mineral Salts, or Salts supposed to be Mineral are,

1. Sea Salt, or common Salt.
2. Nitre.
3. Alum.
4. Borax.
5. Sal Ammoniac.
6. Epfom Salt, or the Sal Catharticum amarum.
7. Dr. Lister's Nitrum Murale, or Calcareous Nitre.
8. The universal Acid.
9. The mineral alkaline Salt.

(I) SEA SALT.

XI. In order to discover whether Sea Salt, or any other known Salt be naturally contained in a Mineral Water, it is previously necessary to be acquainted with the Natures and Properties of these Salts, otherwise we might be at a Loss to know them, when they come in our way.

XII. Some of the chief Properties of Sea Salt, as distinguished from all other known Salts, seem to be these, *viz.*

1. Its particular Appearance, its saline Taste, and its Form being either that of Grains, or cubical Crystals, when true shot.
2. Its preserving Quality, especially with regard to animal Flesh.
3. Its manner of decrepitating, or crackling, in, or over the Fire; and increasing the Strength thereof, when sprinkled over live Coals.
4. The particular Odour it yields in this Decrepitation, being that of the Spirit of Salt.
5. Its affording the true Spirit of Salt, in a dense, white, pungent Vapour by Distillation; which Spirit, as well as the Salt in Substance, turns Aqua fortis into Aqua regia, and thus makes a Solvent for Gold.
6. Its melting with Difficulty in a strong Fire, and at length passing through the Pores of the Crucible.
7. Its being recoverable from its own Spirit by the Addition of any pure and fixed alkaline Salt.
8. Its Spirit constituting Sal Ammoniac with any volatile Al-

cali; or the Salt itself affording Sal Ammoniac by Sublimation, after being digested with Urine.

9. Its remaining dissolved by common Water, in the Proportion of about six Ounces to a Pint.

10. Its Faculty of precipitating Silver dissolved in Aqua fortis, so as to increase the Weight of the Silver, and render it volatile in a strong Fire. A previous Knowledge of these Properties of Sea Salt may sufficiently enable us to discover it in a Mineral Water, or under whatever Form or Disguise it may happen to be met with.

XIII. The known ways of discovering whether Sea Salt be contained in a Water, seem reducible to these three, *viz.*

1. Addition to the Water.
2. Evaporation, and Addition to the dry Matter.
3. Crystallization.

(I) By ADDITION to the WATERS.

XIV. Case 1. To two Ounces of pure distilled common Water, contained in a white, crystalline, cylindrical Glass, add, Drop by Drop, four Grains of a pellucid Solution of Silver, made in Aqua fortis, with one Ounce of refined Silver to four Ounces of proof Aqua fortis, and no Milkiness, Cloudiness, Change of Colour, or Transparency will appear in the Water.

XV. Case 2. To two Ounces of the same distilled Water add a single Grain of Sea Salt, let it perfectly dissolve therein, by stirring the whole together with a clean Glass Rod; and now dropping in four Grains of the same Solution of Silver, a manifest Milkiness, or white Cloudiness will appear in the Water, or a white Precipitate fall to the Bottom of the Glass.

XVI. Now, as nothing was added in the second Case, more than in the first, besides a single Grain of Sea Salt, it is manifest that the Solution of Silver, by causing a Milkiness, or white Precipitate, gives an Indication of the Sea Salt added to the Water in the second Case. Therefore, when such a Solution of Silver causes no Change in a suitable Proportion of a Water, it may hence be suspected that the Water contains extremely little, or no Sea Salt; but if a Milkiness, or white Precipitate ensues, that some Proportion of Sea Salt is lodged therein.

XVII. The chymical Reason of the Experiment is this; that Silver remains permanently dissolved in its proper Menstrum Aqua fortis; and by no means so in the Solvent of Gold, or Aqua regia, which will not touch Silver, but constantly precipitates it from its own Solvent Aqua fortis, on account of Sea Salt, or Spirit of Sea Salt, contained in Aqua regia, which constitutes the sole Difference betwixt the two Menstruums. And therefore, when a Solution of Silver, made in Aqua fortis, is added to pure distilled Water, which contains no Sea Salt, it mixes intimately therewith, the Silver here also remaining transparently dissolved, and equally suspended, and dispersed through the whole; but upon the Addition of Sea Salt, which turns the Liquor into an Aqua regia, the Silver is immediately let loose, the Mixture grows white, or milky, and lets the Silver fall, according to its Nature, in a white Powder or Precipitate, to the Bottom.

XVIII. Case 3. To the like Quantities of the same Water, contained in several Glasses, separately add a Grain of pure Nitre, pure Alum, and pure Borax, in all which there is no Mixture of Sea Salt, and into each Glass let fall the Solution of Silver as before, upon which no Change of Colour, or Transparency will ensue, nor any Precipitation be made. And this appears to hold of all the Salts wherein no Sea Salt is contained.

XIX. Case 4. Mix together, in a clean Glass Mortar, equal or unequal Parts of pure Nitre, pure Borax, and pure Alum, wherein there is no Sea Salt lodged; put four Grains of this Mixture into two Ounces of the distilled Water, let the whole intirely dissolve therein; then add the Solution of Silver, as before, and still no Milkiness or Precipitation, like that in the second Case, will appear. And this also seems to hold of any Mixture of Salts, provided there be no Sea Salt among them.

XX. These four Cases, when duly considered and compared, will shew that a Solution of Silver in Aqua fortis is a ready, an exact, and commodious thing for intimating whether there be or be not any considerable, or even minute Proportion of Sea-Salt contained in a Water. The same may likewise be done by a Solution of Quicksilver in Aqua fortis, or an aqueous Solution of Sugar of Lead, though not in so exquisite and perfect a manner. This kind of Proof may sometimes, indeed, happen to be fallacious, incompetent, or insufficient, because other Salts, or Substances, whose Natures and Properties are not hitherto known, may possibly be able to precipitate Silver in Solution, as well as Sea Salt does; whence such kind of Trials should not be proposed as demonstrative, but only as probable. All the Inference, therefore, to be justly made from them, before they are otherwise verified, or confirmed, is, that since it must with regard to the Truth of the Experiment, be the same thing whether

whether Sea Salt is added to a Water by Nature, by Accident, or the Hand of Man, provided it be in the Water, we may hence be furnished with a probable Indication whether any Sea Salt, even in a small Proportion, be contained in a Water or not. We now proceed to more direct and infallible Proofs.

(2) By EVAPORATION and ADDITION to the DRY MATTER.

XXI. Case 1. To half a Pint of distilled common Water add a Dram or two of Sea Salt, which being totally dissolved therein, evaporate the Solution, over a clear Fire, till a dry Matter remains at the Bottom. This dry Matter will, upon all Trials, be found to be Salt. Thus, for Example, lay a Part of it upon a Piece of clean Glass, and add to it a few Drops of well rectified Oil of Vitriol, and a considerable Heat and Ebullition will ensue, and a particular white, pungent Vapour, or Steam, arise, having the exact Smell of Glauber's strong Spirit of Sea Salt. Now, as no other Salt, unless it contains Sea Salt, or the Spirit of Sea Salt, is found, upon the like Experiment, to afford this particular Vapour and Odour, we have hence a clear Indication that Sea Salt was contained in the dry Matter, and by adding a sufficient Proportion of distilled Water to this Matter, then evaporating the Solution, the Salt may be easily recovered in its own prilline Form.

XXII. Case 2. As Nitre and Sea Salt may happen to be mixed in a Water, and as both of them afford their respective Vapours, or Spirits, upon Contact of Oil of Vitriol, dissolve equal Parts of these two Salts in distilled Water, and exhaling the superfluous Moisture, put the dry Matter into a Retort, and adding Oil of Vitriol to it, distil in a Sand Heat, whereby a true Aqua regia will be obtained; that is, a Mixture of Spirit of Nitre, and the Spirit of Sea Salt, both which Spirits are thus made to rise in Vapour, and come over mixed into the Receiver; whence we have a clear Indication that both Sea Salt and Nitre were contained in the Mixture; since no other Matters besides these two in Conjunction are found to afford the true Aqua regia.

XXIII. Case 3. Mix together equal or unequal Quantities of Sea Salt, Salt of Tartar, Epsom Salt, Borax and Alum; add a proper Proportion of Oil of Vitriol thereto, and the peculiar, white, pungent Vapour of Sea Salt will immediately arise, and give a plain Indication that Sea Salt was contained in the Mixture. And this appears to hold of any other Mixture of different Salts with Sea Salt, excepting Nitre, whose Mixture with Sea Salt was considered under the second Case; for Nitre, upon Contact with Oil of Vitriol, yields its own peculiar Vapour, or the Fume of Spirit of Nitre, easily distinguishable from all others.

XXIV. Case 4. Mix together equal or unequal Parts of Sea Salt, Bole Armoniac, Chalk and Brickdust; then pouring Oil of Vitriol thereto, the peculiar Vapour and Odour of the Spirit of Sea Salt may still be remarkably observed and distinguished; and this Experiment also appears to hold of the Mixture of Sea Salt with any other stony, earthy, or mineral Substances.

XXV. If this kind of Proof, depending upon the Knowledge of the Smell, and Appearance of a certain Fume or Vapour, should be thought precarious or inconclusive, as it may be by those who are unacquainted with the peculiar Sensation constantly impressed by the Fume or Spirit of Sea Salt striking the Nostrils of any Person who has his Smell, the Experiment may be farther prosecuted, and rendered more satisfactory and conclusive; for if the Mixtures affording this Odour be distilled in a Glass Retort and Receiver, with a sufficient Quantity of Oil of Vitriol, they will afford the true Spirit of Sea Salt, according to all Trials, and particularly by this, that it is convertible into Sea Salt again, by the proper Addition of any fixed alkaline Salt.

XXVI. The chymical Foundation whereon the Success of these Experiments with Oil of Vitriol depends, is this, that Oil of Vitriol being a strong Acid, and powerfully disposed to act upon Sea Salt and Nitre, so as to enter forcibly into their more fixed or gross Parts; at the same time that this is done, their lighter or more volatile Parts are loosed from their Connection with the grosser, and left free to rise according to their lighter Nature; and thus, in proper distilling Vessels, come totally over the Helm, with the Assistance of Heat, leaving the more ponderous and terrestrial Matter behind, closely united with the Oil of Vitriol, as we see in the Distillations of Glauber's strong Spirit of Sea Salt, and Spirit of Nitre.

(3) By CRYSTALLIZATION.

XXVII. Case 1. Dissolve any Proportion of Sea Salt in distilled Water, evaporate the Solution till a Film or Skin appears on the Surface; then put the Liquor into a clean earthen Vessel, set it to shoot in a cool Place, and, in a few Days time, great Part of the Salt will be found grained; or if the Solution was not too high boiled, and a sufficient time was afforded, shot into Crystals of a cubical Figure.

XXVIII. Case 2. Mix equal or unequal Parts of Sea Salt, Nitre, and Epsom Salt, by grinding them together in a clean Mortar; dissolve the whole in distilled Water; evaporate the Solution over a clear Fire, till a Film appears on the Surface; then set the Liquor in a cool Place for some Days, and the Nitre will be found to shoot first in its natural Crystals; which being taken out, and the remaining Liquor again boiled to a proper Height, and exposed to shoot as before, the Sea Salt will be next obtained in its own peculiar Grains or Crystals. And if the Experiment be carried farther, by boiling the Liquor again, and setting it to shoot, the Epsom Salt will likewise be obtained. In the same Manner may any Mixture of different Salts be separated each in its own particular Form or Crystals. The Rule in Crystallization is this, that the Salt which dissolves most copiously in Water, shoots last out of the Mixture; and that which dissolves the most sparingly, first; whence Nitre shoots before Sea Salt, and Sea Salt before Epsom Salt.

XXIX. This last Method of Trial, by Crystallization, may of itself be esteemed certain or satisfactory; but joined with the two former, by Addition to the Water, and by Evaporation and Addition to the dry Matter, it amounts to a physical Demonstration: So that where they all agree, there can be no doubt that Sea Salt is contained in a Mineral Water, treated after the same Manner: For the first affords an Intimation, that this Salt is naturally contained in the Water; the second shews, that it remains after Evaporation; and the third, that it is actually separable in its own proper Form from the Water, and may in this State be fairly examined, to try whether it has or has not the known Properties of Sea Salt. If any Scruple or Suspicion should remain, as to its being Sea Salt, let it be strictly compared with a Parcel allowed to be Sea Salt, in all Respects, according to the Characteristics above given of this Salt; and if no Difference appears betwixt the two, they must at least be acknowledged of the same kind.

XXX. It might indeed be here objected, that though Sea Salt should be contained in a Water, yet Nature may have so intimately, or, as it were, undistinguishably and inseparably blended or mixed it in with the Water, or other Contents, as not to manifest itself upon the severest Trials; as fixed alkaline Salt is concealed in Glass, Acid in Flint, or Sulphur and Mercury in Metals; or as other Principles are in those emphatically called Mixts, to distinguish them from Aggregates or Compounds, where the Texture is loose, and the Parts much more easily separated. And this Objection must be allowed of Force, in some Cases, till we can shew that even these Mixts can be separated by Art, or have their Ingredients rendered cognizable by the Senses or the Reason. This indeed belongs to a higher Chymistry than we are at present concerned with; otherwise, it might be made appear, that Mixts, with regard to their Analysis, differ not from Compounds, provided we were furnished with suitable analysing Powers, Instruments, and Menstruums. Thus Glass may be, without much Difficulty, separated into the Sand, and fixed Salt that compose it; and Flints have their Acid separated from them in the making of Glass, as we see in that Substance called, at the Glass-houses, Sandiver; and even the purer Metals may be analysed by the Burning-glass, and otherwise. But there is no Occasion to go thus far for an Answer to the present Objection, in the Case of Mineral Waters, till it can be shewn that Nature has made any such firm Mixtures as those above mentioned in Mineral Waters. On the contrary, numerous Experiments shew that the Principles here lie loose, and may be separated, by ordinary Means, to such a Degree of Simplicity, as clearly to manifest their physical and medicinal Effects, Virtues, and Uses, wherein our present Enquiry centers. We therefore presume, that the preceding Experiments, duly applied and considered, furnish us with a sure Method to discover whether any Mineral Water contains Sea Salt; and if it does, to separate it from all other Things, render it sensible, and determine its Proportion.

XXXI. We have been the fuller upon this first Article of Sea Salt, to shew an Example of the inductive Method, which we would recommend in Experiments, and particularly in prosecuting Enquiries of this kind, where the Foundations of physical Certainty have scarce hitherto been laid. And hoping there may be enough done in this strict Way, to shew the Nature of the Procedure intended, we shall, for fear of being thought too minute and tedious, by frequently and circumstantially repeating the same kind of Experiments, endeavour to dispatch the remaining Part in a more concise and summary Manner.

(2) NITRE.

XXXII. The Characteristics of pure Nitre, or Salt-petre, seem to be chiefly these, viz.

1. Its peculiar Form, or hexagonal, prismatic Crystals, pyramidal at one End, when the Shoots are true and perfect.
2. Its particular sharp, or penetrating, cool, and lightly bitterish Taste.
3. Its preserving Flesh, and at the same time giving it a particular florid or rosy Colour; whereto may be added its improving

proving the red Colour of the Blood, especially when inclined to be white, black, or fizy.

4. Its cooling the Body, and lowering the Pulse; more remarkably in Fevers and Pleurifies.

5. Its yielding a red suffocating Fume, or Vapour, in Distillation, and thus affording a true Aqua fortis, or Spirit of Nitre, which is a Solvent for Silver, but not of itself for Gold.

6. Its manner of flowing, or melting, in a Crucible in the Fire, which is quick and igneous; though this Salt does not of itself take flame in the strongest Heat.

7. Its fulminating, and turning to a fixed alkaline Salt in Fusion, upon the Addition of Charcoal, Tartar, &c. with a considerable Loss of Weight.

8. Its composing Gunpowder with common Brimstone and Charcoal.

9. Its being recoverable from its own acid Spirit, by the proper Addition of any fixed alkaline Salt.

XXXIII. These Properties of Nitre being laid down, it is easy to try if any Salt, supposed to be nitrous, whether found in a Mineral Water or otherwise, be real Nitre or not. And hence it is manifest, that by Nitre, or Salt Petre, we do not mean the Nitrum Murale, or calcareous Nitre of Dr. Lister, whose Properties will hereafter be delivered; nor the Nitre of the Ancients, which appears to have been a very different thing, of an alkaline Nature; but our common refined Salt-petre, used in Medicine, Chymistry, and the making of Gunpowder; being a neutral Salt, with regard to Alkali and Acid, though resoluble by Fire and proper Additions into a strong Alkali and a strong Acid.

XXXIV. The Ways of discovering whether this Nitre be contained in a Water seem reducible to four, viz.

1. By Immersion, or steeping certain Bodies in the Water.
2. By Evaporation, and Addition to the dry Matter.
3. By Distillation with Additions.
4. By Crystallization.

(1) By IMMERSION, or STEEPING.

XXXV. If a little Nitre be dissolved in distilled Water, and Paper be steeped a while in the Solution, then dried before the Fire; and, if there be Occasion, dipped and dried again; the Paper being now applied to a lighted Candle, or a glowing Coal, will immediately take fire, though not flame, and burn like Quick-match in a certain sparkling manner, so as to give a manifest Sign that it received this Property from Salt-petre; for Paper steeped in the like Solutions of Alum, Epsom Salt, fixed alkaline Salts, Vitriol, Borax, Nitrum Murale, Sea Salt, or any other of the known Salts, will not produce the same Phenomenon. Whence, if Paper several times steeped in a Mineral Water should produce this Effect, or burn after the same particular manner, this would be an Indication that the Water contained Nitre.

XXXVI. The Reason of the Experiment scarce needs to be mentioned, as it is obvious that the Paper, by being soaked in the Solution, becomes impregnated with the Water, and of course with Particles of the Salt; and being afterwards dried, the aqueous Parts thus exhale, and leave the Particles of the Salt sticking in the Pores of the Paper, which being now applied to the Candle, it takes fire, and burns, or makes little fiery Explosions, according to the well known Property of Nitre, when mixed and fulminated with any inflammable Substance. But as this Effect may possibly be prevented, or not so remarkably follow, if other Salts should happen to be mixed in too large a Proportion along with the Nitre, the following Case may help us to discover Nitre where it is blended with other Salts.

XXXVII. If equal or unequal Quantities of Nitre, Sea Salt, Epsom Salt and Borax be dissolved in distilled Water, and a Piece of raw Flesh be steeped in the Solution for some Hours, when it is taken out and examined, or compared with a Piece of the same raw Flesh which has not undergone the same Operation, the former will be found redder than the latter, or than another Piece of the same Flesh set to steep for the same time in a Solution of the several Salts above mentioned, except the Nitre; whence it follows, that Nitre, according to its known Property, was the Cause of this additional Redness. If, therefore, Mineral Water should have the same Effect upon raw Flesh steeped therein, we may presume that the Water contains Nitre.

XXXVIII. It should seem that Nitre gives this particular red or rosy Colour to raw Flesh, on account of some of the Blood still remaining therein; for Nitre acts powerfully upon Blood, so as to heighten its Colour, and long preserve it fresh and sound, even when stagnant or extravasated. But, to determine this matter, it might be proper to try, whether a Muscle so well washed and cleansed from its Blood (by soaking in fair Water, by Injections into the Blood-vessels, or otherwise) as to appear white, could have any Degree of Redness restored to it by Nitre; or whether it will turn a Tendon or other white animal Substance red.

(2) By EVAPORATION and ADDITION to the DRY MATTER.

XXXIX. If Nitre be dissolved in Water, and the Solution evaporated to Dryness, the Nitre will remain behind, and may be proved to be Nitre by mixing it with powdered Charcoal, and trying if it will fulminate and turn to an alkaline Salt in the Fire; if it will make Gunpowder with Brimstone and Willow-coal; or if it will afford the peculiar red Fume of a particular, nauseous, suffocating Odour, like that of Aqua fortis, by pouring Oil of Vitriol to it. And in the same manner, though Nitre should be mixed with several other Salts in a Water, after Evaporation, to a dry Substance, Indications may be gained of its being among them; but particularly by adding Oil of Vitriol to the compound Mass, and observing and examining the Fume and Odour thence arising.

(3) By DISTILLATION.

XL. So again, if Nitre, after the full Evaporation of any Water, remains mixed among the dry Matter, it may be discovered by adding either Oil of Vitriol, calcined Vitriol, or Brickdust thereto, and distilling in a naked Fire; for thus the Nitre parting easily with its Spirit, this Spirit will soon rise, and come over in red Fumes into the Receiver; only if Sea Salt happens to be in the Mixture, there may thus be obtained an Aqua regia, instead of a pure Spirit of Nitre; though this also gives a sufficient Indication of the Nitre, as Aqua regia cannot be made without the Spirit of Nitre. To carry the Proof farther, let Trial be made whether, by adding a sufficient Proportion of any fixed alkaline Salt to the Spirit thus procured, true Nitre may not be recovered; and whether this Nitre in particular will not serve in the making of Gunpowder, because it has been suspected that regenerated Nitre will not.

(4) By CRYSTALLIZATION.

XLI. It need not be mentioned, after what has been said before of Crystallization, that a simple Solution of Nitre in Water being brought to a due Height, and set in a cool Place, will in a few Days shoot into hexagonal, prismatic Crystals of pure Nitre; so that if any Mineral Water should contain no Salt but Nitre, this may easily be obtained from it, by a proper Evaporation, and subsequent Crystallization. Again, though several other Salts besides Nitre should be contained in a Water, they may, by repeated Evaporations and Crystallizations, be made to shoot separate, and thus be obtained pure, each in the Shoots or Crystals peculiar to itself, according to what was above delivered, under the Article CRYSTALLIZATION, with regard to Sea Salt. And in this manner, therefore, Nitre may be obtained pure, and free from the Admixture of any other Salts which happen to be contained in a Mineral Water.

XLII. It will here be proper to remember, that nitrous or other saline Matters may possibly be contained in Mineral Waters, and yet not be brought to appear in a solid or true crystalline Form, without some particular Encheiresis, or Expedient suited to the Purpose. Thus it is a constant Practice, at the Salt-petre Works, to use a fixed alkaline Salt, in order to consolidate or embody the Nitre, and make it short, firm, strong and regular. The Cause appears to be this; that the Matters capable of affording such firm and solid Salts are usually of themselves too acid; for many acid Matters are little disposed to shoot and form themselves into solid and hard Crystals; but, to fit them for this Purpose, require to have their prevailing Acidity destroyed, and the whole Substance brought to a neutral State, by means of fixed alkaline Salts, or terrestrial Alkalies, as we see in the making not only of Salt, but also of Loaf-Sugar, Alum, the artificial neutral Salts, &c. And these several Experiments and Observations properly applied, extended and varied, may afford us a Method of discovering with physical Certainty whether Nitre be contained in a Mineral Water or not.

(3) ALUM.

XLIII. The more essential Properties of Alum, so far as they are hitherto known, seem to be principally these, viz.

1. Its peculiar Figure, or the Form of its Crystals, which consist of eleven plain Sides, five of them sexangular, and six quadrangular.

2. Its peculiar, sharp, rough, styptic, or astringent Taste.

3. Its melting aqueous over a soft Fire, and rising in a Blister; but at length to a white, light, spongy Substance, called Burnt-Alum.

4. Its affording, when burnt, an acid Spirit, somewhat like Oil of Vitriol, by being distilled in a strong Fire, even without Addition.

5. This Spirit constituting Alum again, by being properly united with any fixed alkaline Salt.

6. Its particular Uses in striking and fixing certain Colours along with other Ingredients, as we see in the Art of Dying, Leather-dressing, the making of red Inks, &c.

7. Its being the only Salt, that, with suitable animal, or vegetable Substances, will make the black Phosphorus, or Pyrophorus.

The black Phosphorus is a black Powder, now usually made with Wheat Flower and Alum mixed together in a certain Proportion, and calcined to a certain Degree, till it acquires the Property of taking fire spontaneously in the open Air, and appearing like a glowing Coal.

8. Its near Affinity with Vitriol freed from the metallic Part it contains.

9. Its serving like Vitriol in obtaining the common Kinds of Aqua fortis from Nitre.

XLIV. The more satisfactory Ways of discovering whether Alum be contained in a Mineral Water seem reducible to three, *viz.*

1. By the Taste.
2. By Evaporation, and treating the dry Matter.
3. By Crystallization.

(1) By the TASTE.

XLV. It is easy to distinguish, by the Taste, any considerable Proportion of Alum dissolved in Water; but if the Proportion should be very minute, Part of the Water may be exhaled, and the Remainder tasted; for Alum will not evaporate by being boiled in Water; so that thus the Proportion may be greatly increased, till at length, if there be any of this Salt in the Water, it will come to be perceived by the Taste. And this Case may often hold, though other Salts besides Alum should happen to be lodged in the Water, such as Epsom Salt, Nitre, fixed alkaline Salt, &c. But the Salts, or other Substances which mixed with Alum in a Mineral Water seem the most likely to confound the Taste, or prevent its perceiving the Alum, are Sea Salt, Acid, Vitriol, styptic irony Earths, Chalk or Limestone corroded and dissolved by an Acid or otherwise; so that, though a Water actually contains Alum, yet the Taste shall not with Certainty discover it; whence Recourse must be had to particular Experiments, more subtle and exquisite than the Taste. We cannot at present suggest or recollect any satisfactory Experiment for determining, by Addition to the Water, whether Alum, either alone, or mixed with other Salts, be contained in a Mineral Water; though the Plant called Ragged Robert is said peculiarly to turn any Water red wherein Alum is dissolved.

(2) By EVAPORATION, and TREATING the DRY MATTER.

XLVI. When Alum is the only Salt contained in a Water, it may easily be discovered and rendered sensible by Evaporation, and trying whether the dry Matter, upon Examination by the Senses and particular Experiments, does not manifest all the known Signs of Alum. But when this Salt happens to be mixed with others, let the dry mixed Mass be laid upon a hot Iron Plate, where the Alum rising in a Blister, and separating from the rest in the Form of Burnt Alum, may be afterwards dissolved in distilled Water, and brought by Crystallization to the true Form and Appearance of Alum. This Method, indeed, may prove imperfect, especially when other Salts that swell and rise in Blisters upon a hot Iron as well as Alum happen to be mixed therewith, as Borax, and the calcarious Nitre do, though in a somewhat different manner; so that, in this Case, a farther Illustration and Confirmation must be had from the surer Method of Crystallization.

(3) By CRYSTALLIZATION.

XLVII. Although a Water should be truly aluminous, yet it may not be practicable, as was also observed under Nitre, to make the aluminous Matter crystallize without the Assistance of a proper Expedient for the Purpose. Hence, even at the Alum Works, the Alum does not appear in its true rocky Form at the first Operation, without the Addition of Kelp and putrefied Urine, whereby we are directed to use the same Expedient occasionally. And thus if a Water should contain any Number of Salts, besides an aluminous one, this may, by Crystallization properly repeated, be separated from the rest, and rendered sensible in its own natural Form.

(4) BORAX.

XLVIII. Borax is a Salt not hitherto allowed to be found native in England, for which Reason we shall, in this Place, treat more lightly of it; though its natural History is of Consequence in Chymistry and Physics, as being a Salt of a very extraordinary Nature. Its discriminating Properties are chiefly these, *viz.*

1. Its Form and Appearance, as brought to us from the East Indies, which is that of dirty Lumps, or a coarse, saline and particularly fetid Substance, mixed with much unctuous, earthy and stony Matter; and in this State it is commonly called Tincal, or Tincar.
2. Its pure and intire Crystals, when refined, being octagonal Prisms very finely cut, though seldom obtained perfect in the ordinary way of refining it.
3. Its particular Taste, not only to be described, as being sweetish, sharpish, and somewhat urinous or lividous.
4. Its Property of soldering Metals, or making them easily

unite, or take hold of each other; more particularly the Parts of Gold.

5. Its making an excellent Flux for Metals and certain Ores; and, by being melted with a proper Proportion of Sand or Flint, turning, in a very short time, to a hard Glass, capable of cutting common Glass almost like a Diamond.

6. Its extremely vitrescible Nature, so as by itself, with a moderate Heat, and in a few Minutes time, to become true and permanent Glass.

XLIX. The Ways of discovering whether Borax be contained in a Mineral Water are principally two, *viz.*

1. By Evaporation.
2. By Crystallization.

(1) Since this Salt does not exhale by boiling in Water, (as appears in the refining of it, which requires long boiling) if any of it be dissolved in Water, it will be left behind among the dry Substance gained by a total Evaporation, which dry Substance being laid upon a hot Iron held over a common clear Fire, if any Part thus melts aqueous, and rises high into a white spongy Mass, this may be collected separate, and examined by the Senses and particular Experiments, according to the Properties above laid down, whether it be Borax, Alum, or the calcarious Nitre; for all these rise at first somewhat in the same manner; but if the Fire be continued, or raised to a proper Height, the Borax soon melts a second time, and turns to Glass, which Alum and the calcarious Nitre will not do; whereby it may be readily distinguished from them. And this Glass has the same Properties as Borax itself, with regard to Soldering, fluxing Metals, &c.

L. (2) But to gain Borax in its natural Form and Appearance, separate from all other Salts or foreign Mixtures, we must have recourse to Crystallization. And to obtain it in perfect or intire Crystals, certain Additions, Cautions, and Encheiresses are required, wherein consists the Secret of refining this Salt. Thus, in Particular, it is necessary,

1. To use a strong alkaline Salt, and Lime-water.
2. To make the Solution perfectly pure.
3. To cover this Solution whilst it remains hot, and suffer it to cool slowly.
4. To use proper metalline Strings for the Salt to adhere to.
5. Not to open the Vessel till the Liquor has been for some time cold. And thus it may be discovered whether Borax, perfect or imperfect, be contained in a Mineral Water.

(5) SAL AMMONIAC.

LI. Sal Ammoniac has the following Properties, which may sufficiently distinguish it from any other known Salt, *viz.*

1. Its Taste is much more penetrating and quick than that of Sea Salt, and somewhat urinous.
2. It renders Water intensely cold, whilst continuing to dissolve therein.
3. By Crystallization it shoots into a kind of light, feathery, or snowy Substance.
4. When mixed with any fixed alkaline Salt, it yields a pungent volatile Vapour, that strikes the Nostrils like Salt of Harts-horn; and if the Mixture be sublimed, a dry, volatile, alkaline Salt is thus obtained.
5. It has the Property of soldering or joining Tin and Copper together.
6. It will, by itself, with a proper Degree of Heat, totally sublime, unaltered in its Nature.
7. It causes certain Mineral Waters, and even Metals, to sublime along with it.
8. It turns Aqua fortis into Aqua regia, on account of the Spirit of Sea Salt which it contains.

LII. A Knowledge of these Properties, and of the Doctrine already delivered, will enable us to discover whether this Salt be contained in a Mineral Water, *viz.*

1. By the Taste, especially after a large Proportion of the aqueous Moisture is evaporated.
2. By trying whether the Water, after a large Evaporation, will promote the Union of Tin with Brass or Copper in the way of Soldering.
3. By exhaling the Water to a dry Remainder, and putting this Remainder to common Water, to try if it will increase the Coldness thereof.
4. By dissolving with Water the Salts contained in the dry Remainder, and crystallizing the Solution, to try if any true Sal Ammoniac may be thus obtained.

(6) EPSOM SALT, or SAL CATHARTICUM AMARUM.

LIII. Some of the principal Properties of the Sal Catharticum amarum, when perfectly pure, are the following, *viz.*

1. The Form of its Crystals, which appear like small icy Plates, all of them transparent, when singly viewed against the Light, but white when lying in a Heap, and viewed by Reflection; though Glauber's Sal Mirabile also will sometimes shoot in the like small, icy Plates, somewhat resembling fine Sperma Ceti in the Parcel.

2. The considerable Bitterness and penetrating Nature of its Taste, whereby it seems to sink deep into the Tongue, whilst it dissolves quick in the Mouth.

3. Its dissolving totally and readily in its own Weight of common Water, leaving the Solution coagulable into a white and almost solid Substance, by the Addition of rectified Spirit of Wine.

4. When perfectly pure, and totally separated from Sea Salt, it neither grows hot, nor makes any Ebullition upon the Addition of Oil of Vitriol.

5. Its Solution in Water does not turn white, or milky, with the Solution of Silver in Aqua fortis, provided the Salt be perfectly pure, whence we may have a Test of its Purity, and intire Separation from Sea Salt.

6. It has a quick and strong purgative Virtue; but so likewise has that artificial Salt, called Glauber's Sal Mirabile.

7. When mixed with powdered Charcoal, and set in a strong Heat, it totally exhales, and yields a copious sulphurous Fume.

LIV. By these Properties we may be enabled to discover with Certainty whether the Sal Catharticum amarum be contained in a Mineral Water, viz.

1. By a remarkable and particularly nauseous penetrating Bitterness found upon tasting the Water, especially after some considerable Evaporation of its aqueous Part; for this Salt will not fly off in the Evaporation, as we know from the manner of preparing it, after long boiling at the Salt-works, where it is made from Sea Salt, after all the Sea Salt is shot, when the remaining Liquor, called Bittern, by a farther Evaporation and Crytallization, affords the Sal Catharticum amarum.

2. As this Salt appears to be the most soluble in Water of any Salt, except Sugar, we are not, by the Law of Crytallization, to expect it should appear till the other Salts are first separated from the Mineral Waters that hold it; after which, by a fresh Evaporation and Crytallization, it may be gained in its true Figure, and be proved to be pure and perfect, by its having the several Properties above enumerated.

(7) NITRUM MURALE, or the CALCARIOUS NITRE.

LV. This Salt is not only said to be found in Mineral Waters, but also to be procurable by powdering and boiling the Mortar of old Walls, and crytallizing the clear Solution or Lixivium. The Properties of it, so far as hitherto known, are chiefly these, viz.

1. Its Crytals, when perfect, are long and slender, consisting of four, and sometimes of five unequal parallelogram Sides; but one of the Points of two plain Triangles, and the other of two flat Squares.

2. It is lightly bitter to the Taste, and does not readily dissolve in the Mouth, nor with the Sensation of Coolness, as true Nitre does.

3. It is a neutral Salt, or neither acid nor alkaline, though very different from Salt-petre, with which it has been confounded, as not being disposed to make Gunpowder, nor Aqua fortis, nor to fulminate with Charcoal in the Fire, nor to turn to a fixed alkaline Salt.

4. When kept upon a hot Iron Plate over the Fire, it rises in Blisters, and turns to a light, spongy, white Substance, which, when farther urged by Heat, does not vitrify, but remains loose like Lime. The sure Way, therefore, of discovering whether this Salt be contained in a Mineral Water, is by Evaporation and Crytallization carried to their due Length, and examining the Salts separately obtained, to see if any one of them answers to the Characters here laid down.

(8) MINERAL ACIDS.

LVI. Acids are of various Kinds, or vegetable, animal, and mineral, with their respective Subdivisions as Lemon-juice, Rennet, Spirit of Sulphur, or Oil of Vitriol, &c. But what we are here more particularly concerned with is, the Mineral Species, or such as being naturally contained in the Earth may come to mix with a Mineral Water. And that something of this kind happens in certain Waters, appears to have been generally believed, as all the brisk or spiritous Mineral Waters are to this Day called by the Name of Acidulæ. This Opinion seems to have arisen first from the Taste of these Waters, which is sharp, quick, brisk and pungent, whilst the Waters are fresh; and, secondly, from a Supposition that there is one general or universal Acid contained in the Earth; which Acid, by corroding or dissolving a suitable Earth, makes Alum; or by saturating itself with Copper, or Iron, makes the respective Vitriols of those Metals, &c.

LVII. Now, in order to determine whether this, or any other Acid, be contained loose or unmortified in a Mineral Water, we should, as in the former Cases, be previously acquainted with the Properties of Acids as Acids. And these Properties seem reducible to the three following, viz.

1. The Taste, when rightly informed and prepared, and the Subject properly applied, or in a sufficient Degree of Strength to be cognizable. Thus, though the Juice of Lemons, and Spirit

of Sulphur are acid, yet they may be so largely diluted with Water, as not to be distinguishable by the exactest Taste. And that the Taste may be ill instructed; or, to speak more properly, that the Judgment may form a wrong Conclusion from the Sensation called Taste, is certain, because the Taste, which some call brisk, quick, or alkaline, has by others been called tart, sour, or acid, which has been the Case in several Mineral Waters. A proper Habit of Judging, or a kind of learned and exercised Taste, seems therefore requisite in this Affair.

2. The Change of Colour which Acids (or Liquors wherein any Acid presides) produce with certain vegetable Subjects, or artificial Preparations, is a more exquisite way of Trial than the Taste, and discovers a much more minute Proportion of an Acid than is cognizable by the direct Senses, unassisted by this Expedient. These Experiments are various; thus though a Water be but lightly acid; a few dried red Roses, or fresh Violets, will give it a fine red Colour, as may easily be tried by adding a few Drops of Spirit of Sulphur, Oil of Vitriol, &c. to distilled Water, and then putting in the Roses, Violets, or their respective Syrups. So again, if a Water be acid, the Addition of a little Oil of Tartar per deliquium will remarkably alter the Taste of the Water, and give it, for some small time; a Degree of Briskness, Quickness, or Pungency upon the Tongue, which it had not before, and take off the Acidity either totally, or in part, according to the Proportion of the Oil of Tartar added.

3. The third, and most essential or distinguishing Property of Acids, is that of becoming neutral with Alcales, and thus forming a new thing, intirely different in its Properties and Effects from both. This may easily be tried in Juice of Lemons, and Salt of Tartar, a due Proportion of which makes the famous antiemetic, neutral Mixture of Riverius; in distilled Vinegar, and Salt of Tartar, which make that extraordinary neutral Menstruum and Medicine, called Regenerated Tartar; in Oil of Vitriol, and Salt of Tartar, which make the true Tartarum Vitriolatum, &c. And hence we are furnished with three principal, and, if taken together, three sure Ways of determining whether a Mineral Water contains any Acid in the Form of an Acid.

LVIII. The Particulars that may tend to invalidate or elude these Trials, are the Volatility, the Paucity, and the Mixture of the Acid with other things. If the Acid of a Mineral Water should be volatile, and, at the same time, little in Quantity, we may endeavour, by a careful Distillation, to separate, concentrate, or reduce it to a small Bulk, wherein it may bear a large Proportion to the aqueous Vehicle that contains it, and, in this State, make our Experiments upon it, if they should not be capable of discovering it in the natural Water itself. Again, if the Acid be small in Quantity, but of a more fixed Nature, so as to sustain a boiling Heat, without flying off, Evaporation will easily concentrate, or bring it into a less Compass, and fit it the better for our Trials. But if it should be mixed, or intimately united with an alkaline salt Earth, or metallic Substance, it is not to be expected that in this State it should directly manifest itself upon these Trials; as not being the thing we here intend, or are concerned with, as now making an Ingredient in a mixed Body, where its own particular Nature is destroyed or abolished; though more powerful Agents, as for Instance, a violent Fire, or a proper Distillation, with suitable Additions, might here break the Connexion, and recover the Acid, as we see in the Distillation of Nitre, Sea Salt, Alum, Vitriol, &c. where the Acid is separated from the earthy or metallic Matters, wherewith it was before intimately and strongly united.

(9) MINERAL ALCALIES.

LIX. Alcales are of two general Kinds, earthy and saline; we are concerned with both of them in the present Enquiry. By earthy Alcales are meant all those earthy Matters, which of themselves scarce dissolve in pure Water, but being added in a sufficient Proportion to Acids destroy or abolish the Acidity thereof, and form a new thing, of a neutral Nature, that in this new or compound State manifests no Signs of a prevailing Acid or Alkali. And of this kind are Chalk, Lime-stone, Crabs-eyes, Oyster-shells, Egg-shells, &c. Thus if common Water be acidulated with Oil of Vitriol, and a little Chalk be scraped into it, an Ebullition or Conflict will presently arise, during which the Water has a brisk or quick lively Taste; and at length, when the Point of Saturation is hit, all the Acidity will be abolished, not only to the Taste, but so far, that the exactest Experiments commonly used to determine Alcales and Acids will here manifest no Signs of either. And this is a certain Characteristic, or the proper Meaning of an Alkali.

LX. Saline Alcales are of two Sorts, fixed and volatile. How fixed Alcales are obtainable by Art has been shewn above: And some of their principal Properties are the following, viz.

1. They have a fiery or extremely acrimonious Taste, but no Odour.

2. They

2. They are caustic, and, if strong, eat or consume the Flesh, when applied thereto.
3. Being long boiled with Oil and Water, they make Soap.
4. Of themselves they are fixed in the Fire, so as not to lose considerably of their Weight therein.
5. They readily grow moist, and run into a Liquor, by attracting Water out of the Air.
6. Melted with Sand, or any vitrescible earthy Matter, they make Glass.
7. Added to Spirit of Nitre, or Spirit of Sea Salt, they bring these Spirits back to their own Salts respectively.
8. They turn a Solution of Sublimate in Water yellow or red; Syrup of Violets or red Roses green, &c.

LXI. Volatile alkaline Salts appear to differ but little from the fixed, except in those Properties which depend upon their Volatility; for these also are caustic and fiery to the Taste; but, on account of their Volatility, briskly strike and shake the Nerves of the Nose, being spontaneously volatile, and flying away in the open Air, and, in Distillation, rising sooner than Spirit of Wine. These also regenerate Nitre and Sea Salt from their Spirits; though the Salts thus regenerated are semi-volatile, or much more volatile than the natural, being in this respect like Sal Ammoniac. And, lastly, they produce the same Changes of Colour, upon Mixture with other things, as the fixed.

LXII. Under this Head of Alkalies, therefore, our Experiments must be directed to discover whether an earthy, a fixed, saline, or volatile Alkali be contained in a Mineral Water. And, first, if a volatile Alkali should be contained therein, we see it may be reasonably expected that this should manifest itself by its Odour, by Additions, or by Distillation. The Odour of a volatile alkaline Salt, if any such be contained in a Water, may be perceived by immediately applying the Nostrils thereto, especially as fresh taken up from the Well; for if a very few Grains of the volatile Salt of Hartshorn, or a few Drops of the Spirit of Hartshorn, or Spirit of Sal Ammoniac be mixed with a Glass of fair Water, the Odour of them is very distinguishable. Again, if any volatile alkaline Salt reside or be a loose Ingredient in the Water, it will give Signs of itself, by changing Syrup of Violets green; or the like Experiments by Addition; though these Experiments will not of themselves determine whether it be a fixed or a volatile alkaline Salt, because they both act alike, with regard to such Experiments; so that here the Assistance of Evaporation or Distillation may be used to shew whether the Salt will rise by Heat, or remain among the dry Matter, after a total Exhalation of the aqueous Parts. And if any considerable Proportion of a volatile alkaline Salt should be lodged in Water, a gentle Distillation would easily separate it from the Bulk of the Water, and bring it over first in the Form of a volatile or urinous Spirit or Salt, as we constantly find in the Rectification of volatile urinous Spirit, or Salt, with Water.

LXIII. If a fixed alkaline Salt be contained in a Mineral Water, it is easily discoverable by the Addition of such things as are known to produce a Change of Colour therewith, though these will not distinguish it from a volatile alkaline Salt; but then Evaporation is a ready Expedient, whereby a dry Matter being procured from the Water, the fixed Salt may be dissolved or taken up by distilled Water from the rest, and thus be rendered sensible in its own Form; at least this may be done after the other Salts, if there are any, shall have been separated from it by repeated Crystallization; for fixed alkaline Salt will not easily crystallize, or perhaps not at all, unless it some way or other unites with an Acid.

LXIV. If earthy Alkalies, or alkaline Earths, be contained in a Mineral Water, these also are easily separable from it, and rendered sensible by Evaporation, and afterwards taking up the saline Part of the dry Matter by distilled Water; for thus all the grosser earthy Substance will be left behind. But how different earthy Substances may be separated from each other, we shall presently shew; for we are not here concerned with grosser metallic Earths, but those of the finer alkaline kind, which in some Degree approach to the Nature of fixed alkaline Salts, and may therefore in part remain permanently mixed or dissolved in a Mineral Water, without hindering its Transparency, or even pass the Filter along with the saline Matter; for such a kind of Earth is found to adhere or unite to fixed alkaline Salts, and may be separated from them by repeated Solutions and Filtrations, some of this Earth each time remaining in the Filter. And so much for the general Head of Salts.

(2) EARTHS.

LXV. By Earths we here mean all those more fixed Parts of a Mineral Water, which remain behind after a perfect Eluxation or Separation of the saline Matters by means of a boiling Water, whether these fixed earthy Parts be calcareous, metallic, sandy, stony, marly, okery, &c. And though possibly all the Species of Earths, when reduced to a sufficient Degree of Tenuity, or Fineness of Parts, may lodge in the Pores of Water, without hindering its Transparency; yet those that have,

by a proper Analysis, been found in Mineral Waters, seem chiefly reducible to three, viz. The calcareous, stony, and okery; but if any others should be contained in a Water, they likewise may be discovered, separated, and rendered sensible. For as Earths do not evaporate by Heat, especially not by the Heat of boiling Water, whatever of this kind is naturally contained in a Water, will, after a total Exhalation of the aqueous Parts, remain among the dry Matter left at the Bottom; which dry Matter being once or twice boiled in distilled Water, and the Liquor each time filtered, all the more gross terrestrial Matter will thus remain behind in the Filter. So that if only one Species of Earth be contained in a Mineral Water, it is thus easily obtained, and made to appear in its natural Form.

LXVI. But if two or more Earths are suspected in a Water, let Care be taken, from the Beginning of the Evaporation, to observe whether any terrestrial Particles concrete or unite into small Grains almost like Dust or fine Sand upon the Surface of the Water; for these being carefully taken off and dried, may prove a different Sort of Earth from that which falls to the Bottom in the Boiling, as there thus seems to be a Difference in their specific Gravity, or Fineness of Parts. So likewise two different Earths may be obtained separate, by permitting the Water to stand for some considerable time in a wide-mouthed Glass, loosely covered to keep out the Dust; for thus an earthy Skin will often gather on the Surface, and an okery Substance, or metallic Earth, fall to the Bottom, or line the Inside of the Glass.

LXVII. Precipitation is another Method of separating the earthy Contents of a Water, as particularly by adding a fixed alkaline Salt thereto, which causes the earthy Matter to fall to the Bottom, so as that it may be easily separated by the Filter, and by being well washed and dried appear in its proper Form; and thus be submitted to a farther Examination, by means of a proper Degree of Fire, whereby its simple and compound Nature may be discovered.

LXVIII. The distinguishing Properties of a calcareous Earth are chiefly these, viz.

1. Partly to dissolve without much Difficulty in the Mouth, as if it approached the Nature of fixed alkaline Salts.
2. To make an Effervescence with Acids, and take off their Acidity.
3. To become highly sharp, corrosive, or caustic, like Lime, by being burned, or long detained in the Fire.
4. Not to melt, or vitrify, with a strong Heat.

LXIX. Stony Earths, as found in Mineral Waters, are known,

1. By their quick falling to the Bottom of the Water in boiling, and being usually the last that remain after a perfect washing and Separation of the Salts and other Earths by repeated Affusions of fair Water.

2. By appearing like true Sand, and melting into Glass in a strong Fire with fixed Alkali.

LXX. Okery Earths are distinguishable,

1. By their natural yellow, reddish, or red Colour.
2. By growing redder after Calcination.
3. By their rough, styptic, or astringent Taste.
4. By their yielding some Proportion of Iron upon Fusion.

LXXI. In like manner all the Earths, whether metallic, sulphurous, or saline, as Ores, Semimetals, Marcasites, Vitriols, &c. have their peculiar Properties, and may be discovered or brought under the direct Cognizance of the Senses, if lodged in a Mineral Water; especially by means of a proper Eluxation and Fusion, either alone, or with the Addition of proper Fluxes, according to the Rules of Metallurgy.

(3) SULPHURS.

LXXII. Several Mineral Bodies go under the general Denomination of Sulphurs; as Brimstone, Orpiment, Petroleum, Bitumen, &c. But we are only concerned with those at present that may lie concealed, undistinguishable to the Eye, in Mineral Waters; and such are chiefly supposed to be Brimstone and Orpiment: But as Orpiment is not allowed to be found native in England, we need not here be solicitous about it, any farther than to rectify some Mistakes which have crept abroad to its Disadvantage, as if it were, what it is not, a poisonous Mineral. The true native Orpiment, or Auripigmentum, is a yellow, sulphurous, shining, or spangly Mineral, consisting of little Flakes or Scales, like Talc, and comes to us from Greece, where it is dug out of certain Mountains. It is a very different thing from all the Species of Arsenic, which are artificial Preparations of Cobalt, a poisonous Mineral found in Mishia, where the several kinds of Arsenic are prepared. Orpiment being reduced to Powder, and set in the Fire, will flame, and emit a white or yellowish Fume, yielding the Odour of common Brimstone; and thus changing the Surface of a polished Iron Plate held in it of a white, yellow and reddish Colour, leaving a Proportion of sandy Earth behind. It is used by Painters as a Gold Colour, and for making sympathetic Ink, &c. It is sold common at the Colour-shops, without the Suspicion of its being poisonous any more than Antimony, or Brimstone; and

and some have used it medicinally, by the Way of Fumigation, and for venereal Ulcers; and others internally, for the Asthma, without finding it prejudicial. Upon the Whole, Orpiment appears related to Antimony; which is also a sulphureous Mineral, that remains innocent so long as it is joined with its Sulphur, but proves emetic, or deleterious, when separated from it; and, in like Manner, not to mention other Correspondencies, does Orpiment. We have been the more particular in this Account, because some eminent Persons, not distinguishing betwixt Orpiment and Arsenic, have erroneously imagined, that possibly mineral Waters might be poisonous, on Account of their containing Orpiment; and again, to give the Characteristics of it, whereby it may be known and distinguished; though, as was before observed, it is not native in England. But, if it were, and though any mineral Water should be impregnated with it (of which no Instance has hitherto appeared) yet, the same Experiments, that serve to discover Brimstone in a mineral Water, may also serve to discover Orpiment.

LXXIII. Some of the principal Characteristics of Sulphur or Brimstone are these, viz.

1. It melts readily over a soft Fire, and soon grows hard again in the Cold.

2. It is very inflammable, and burns with a livid or blue Flame; at the same Time diffusing, from a very small Quantity, a copious and peculiarly offensive suffocating Vapour or Fume.

3. Being thus burned under a glass Bell, this Fume condenses into a highly acid Liquor, called *Oleum Sulphuris per Campa-*

nam. 4. It is absolutely necessary in the making of Gun-powder, as fulminating and having its Nature intirely destroyed by Nitre in the Deflagration.

5. It readily unites in the Fire with fixed Alkali, and thus makes a dusky red or liver-coloured Mass, which, being dissolved in Water and precipitated, affords an extremely fetid Odor, like that of a rotten Egg.

6. Being distilled with Quick-lime and Sal Ammoniac, it affords a yellow, smoking, and highly fetid Spirit; so likewise do these two sulphureous Minerals, Orpiment and Antimony.

7. Its Solution, in a Lixivium of fixed Alkali, changes Silver black.

8. Being melted and mixed with Quick-silver, the whole turns presently to a black Mass.

9. It dissolves into a Balsam by being boiled with Oil.

10. It demetallizes Iron, applied thereto when red hot; and has other surprising Effects upon Metals.

LXXIV. These Properties of Sulphur may sufficiently enable us to discover, whether it be contained in a mineral Water; the Ways of doing which seem reducible to two, viz.

1. By Additions to the Water.

2. By treating the dry Matter left after Evaporation. But we are to observe, that Sulphur, in an unmixed State, does not easily, or perhaps not at all, dissolve in pure Water, nor in acid Liquors; though it does in such as are alkaline; whence it is chiefly to be expected in mineral Waters of an alkaline Nature. And here it may be easily discovered, by laying Pieces of pure Silver in the Water, to try, if they will be discoloured or turned black therein; or by adding a Solution of Silver to the Water, to try if any Blackness ensues. The Odor also being like that of rotten Eggs, or a foul Gun-barrel, will usually discover such a Mixture of Sulphur. But (2) a more general and satisfactory Way is, to evaporate the Water, and examine the dry Remainder, by laying Part of it upon a hot Iron, to see if thus any Thing melts easily, takes Fire, or burns blue, with the peculiar Odor of fired Brimstone; or if by burning, under a glass Bell, it will yield the *Oleum Sulphuris*. And, lastly, let Spirit of Vitriol and Water be added in a sufficient Quantity, to a Part of the dry Remainder, whereby a Precipitation of the Sulphur, if there is any, will be made; which now falling, in the Form of a Powder, to the Bottom, may be collected separate, sublimed into Flowers, or melted, and thus reduced to a solid Lump of Brimstone, like the common.

(4) FUMES OR SPIRITS.

LXXV. By Fumes or Spirits we here mean, in a general Sense, those fugitive or volatile Parts of a mineral Water, which spontaneously fly off from it in the open Air, or quit the Body of the Water with a less Degree of Heat than serves to raise the mere aqueous Parts thereof in Vapour, or by common Distillation.

LXXVI. The Fumes or Spirits of this Kind, having never hitherto been collected separate and examined, it cannot be expected, that we should here describe their Properties or Effects; but as there is sufficient Evidence to shew, that such Spirits or subtile fugitive Matters do lodge in certain mineral Waters, more especially in those of the brisk, alkaline, and cold Sort; and that they very readily desert the Body of the Water, upon standing open, or feeling a small Degree of Heat; (thus leaving the Water more spiritless and vapid) our best Endeavours should be used to manifest, or render sensible, to separate, collect, and examine these Spirits, in order to determine their Natures;

Properties, and Uses. And the Ways of doing this seem reducible to the following ten, viz.

1. The Smell.

2. The Taste.

3. The Sight.

4. The specific Gravity.

5. Expansion.

6. The exhausted Receiver of the Air-pump.

7. Distillation.

8. Effects upon Drinking.

9. Additions.

10. Direct Collection and Weight.

LXXVII. (1) If a mineral Water, when a Glass of it is fresh taken up at the Well-head, and applied near the Nostrils, shall prove to have a brisk, quick, or pungent Odor; but loses this Odor after standing for some Time in the open Air, or feeling a small Degree of Heat, it may be presumed, that such a Water naturally contains what may be called a Spirit; at least it will hence be certain, that the Water by standing open, or feeling a small Degree of Heat, loses the Property which it had, when fresh, of striking the olfactory Nerves, in a particular Manner, so as to cause a certain Sensation denominated by that particular Odor.

LXXVIII. (2) So likewise, if a mineral Water should have a brisk, pungent Taste, when fresh taken up, but lose it soon after, by standing in the open Air, or by being exposed to a moderate Warmth, this also would afford a Presumption that the Water naturally contained a Spirit.

LXXIX. (3) Again, if a Glass of the Water, when fresh taken up, should manifestly sparkle and throw numerous Bubbles to its Surface; or, when shook in a Glass close stopped at the Mouth, and then immediately opened, should appear to displode or throw off a large Mist or Vapour, and appear to bubble, or sustain a strong internal Conflict, or Commotion in its minute Parts, but not do the same, or in a much less Degree, after standing in the open Air, it would hence at least be probable, that the Water naturally contained a Spirit, or subtile, active Part, which readily quits the less active, and flies off into the open Air.

LXXX. (4) If the specific Gravity of the Water be taken in the Well, or immediately after it is brought up in a proper Glass for the Purpose, and if, upon repeating the Experiment some Time after the Water has stood exposed to the open Air, in the same Glass, it should now prove to have a considerable greater Degree of specific Gravity than before, that is, if its Parts should thus appear to have come closer together, or the Body of the Water to be grown denser, this also would plainly intimate, that the Water naturally contains a light or volatile Substance, which keeps its Particles at a greater Distance, whilst that volatile Substance remains therein; but suffers them to come closer together, after it has deserted the Water.

LXXXI. (5) If thin glass Vials, or common Bladders, filled or half filled with a mineral Water, and well secured at the Orifices, be brought before the Fire, or set in a dry hot Copper; and if other the like Glasses or Bladders be also filled or half filled with the same Water (after having stood in the open Air) and secured in the same Manner; and the Bladders, containing the first Water, should distend or burst sooner than those contained in the second; or, if the Vials containing the former should break sooner (with the same Degree of Heat) than those containing the latter; this would shew that the first Water held something more elastic, spiritous, or expansive than the other. The Experiment with the glass Vials might be made by setting them in a Copper of Water, with their Necks coming out at Holes made in the Cover, so as to prevent any Danger from their Bursting; for thus the Heat would be applied equally, and might be exactly measured by a Thermometer, made with Oil or Quicksilver; though there may be some Difficulty in procuring Vials, or Bladders, of the same Degree of Strength; but then it may be tried, whether the mineral Water, fresh taken up, will not break a Glass which could not be broke by a Parcel of the same Water which had stood open for some Time.

LXXXII. (6) If a Glass of the Water, fresh taken up, be set under the Receiver of an Air-pump, along with another similar and equal Glass of the same Water, after it had stood exposed to the open Air, or a moderate Heat; and if, when Air is drawn out of the Receiver, the former should sparkle more, or throw up a much greater Number of Bubbles than the latter; it would hence appear, that the former contained more Air, or more of an explosive Substance, or Spirit, than the latter.

LXXXIII. (7) If a mineral Water be, at the Well-head, directly put into a clean Retort, and a Receiver be immediately luted on, with a Piece of wet Bladder, tied tight with a waxed Thread; and now the Retort be directly placed in a Balneum Mariæ, or proper distilling Furnace; if any Thing, like Air, or Wind, shall appear to puff through the Luting, or covered Joint, at the very Beginning of the Operation, or, as soon as the Retort grows moderately warm; or if either the Retort, or Receiver, should burst, without any manifest external Violence, or imprudent Management of the Fire; this would shew

that an explosive Vapour, or Spirit, thus came from the Water. And if the same Effect did not follow upon the like Distillation of a Parcel of the same Water, that had been heated before, or exposed to the open Air, the former Conclusion would be considerably verified.

LXXXIV. (8) If a mineral Water, when drank fresh, at the Well-head, should have a Kind of intoxicating Effect, or give a considerable Degree of Alacrity, or occasion the Head-ach, a Drowsiness, &c. but have no such Effects, when drank in the same Quantity, by the same Persons, after having been warmed, or after having stood for some Time open; this also may shew, that the Water, when fresh, naturally contains a Spirit.

LXXXV. (9) If a Glass of any mineral Water, fresh taken up at the Well-head, being mixed with a light Acid, or particularly with Rhenish Wine, and Sugar, should make a strong Ebullition, with a large white Froth, or Foam, and discharge a visible Mist, or Vapour, to a considerable Height; and, during this Conflict, taste extremely keen, brisk, or pungent, but do thus in a much less Degree, upon the same Experiment, after having stood, for some Time, open to the Air, it will hence also appear that the Water naturally contains a light, subtile, active Matter, or Spirit, which it loses by standing in the Air. So again, if a mineral Water should, when fresh, or perfect, change its Colour remarkably upon the Addition of the first Powder of Galls, and turn with it either purple, dusky, or inky; but not do this at all, after the Water has been taken up, and suffered to stand in the Air for a few Hours; it would hence also follow, that the Water naturally contains a Spirit, in our Sense of the Word; and that this Spirit is, at least in Part, an actual volatile Iron, or volatile Vitriol of Iron, as no other Thing is found to have this Property.

LXXXVI. We come, in the last Place, to an Experiment, which may, if it succeed, be of itself esteemed conclusive, but joined with all, or some of the foregoing, will amount to a physical Demonstration. The Experiment is this: Take a Vial, a Bolt-head with a proper Neck, or a common Quart Bottle, and nearly fill it with a mineral Water, at the Well head; have in Readiness a fine limber Bladder, well rubbed, and made thoroughly supple, or pliable, by oiling it on the Outside, and rubbing it betwixt the Hands, with Care to squeeze all the Air out, in which State it should be carefully weighed, in an exact Pair of Scales; immediately tie the Neck-part of this Bladder over the Mouth of the Glass, with a waxed Thread, as tight as possible; then remove the Glass to a proper Furnace, or gentle Heat of Sand, or Water, where, if upon standing a while to grow warm, the Bladder appears distended, as if it were blown up, squeeze the Neck-part of it, to gain a Vacuity, and there again carefully pass a waxed Thread (which also should be weighed before-hand, or along with the Bladder) and now, taking off the former Ligature, the Bladder may be removed, and weighed again, to see what additional Weight it has gained by the Matter, or Spirit, wherewith it is distended, allowing (if weighed in the Air, and not in Vacuo) for the Difference of specific Gravity betwixt the Bladder flaccid and distended, or so full blown and empty: And, if any absolute Weight be gained, this is the Weight of the Spirit contained in the Quantity of Water made Use of, provided the Experiment was perfect. And thus the Spirit of a mineral Water may, perhaps, not only be made sensible, as Air in a blown Bladder, to the Eye, the Touch, &c. but also be submitted to a Variety of other Experiments, in order to discover its Nature, Properties, and Uses. And here it should be particularly examined, whether the Spirit be a Simple or a Compound; if a Compound, how it may be resolved, how imitated, how introduced, artificially, into Water, how it is naturally made, or whence it proceeds, &c.

LXXXVII. We have now, in our Manner, gone through the four general Classes, under which the principal Contents, or Ingredients, of mineral Waters, seem to be reducible; viz. Salts, Earths, Sulphurs, and Spirits; for the mere aqueous Part, which is the Vehicle, or Menstruum, of the Whole, we have here no particular Regard to, as being not, strictly, an Ingredient in mineral Waters, but a Kind of general Instrument, or Agent, whose Properties, Office, and Use belong to another Enquiry.

LXXXVIII. But it will recur, to the Imagination, that there may still, possibly, be Salts, Earths, Sulphurs, Fumes, Spirits, or many other Things of an unknown Nature, that, either in a smaller or larger Proportion, entering the natural Composition, or Mixture, of mineral Waters, are such, as no Experiments, hitherto devised, can any Way discover, or render sensible. This Objection, indeed, is readily suggested by the Imagination, but how far the Reason approves of it, remains to be considered.

LXXXIX. No one, tolerably acquainted with the present State of Chymistry and natural Philosophy, will pretend, that either of them is arrived near to Perfection; or, that the Ways of making a true and proper Analysis of all natural and artificial Bodies are hitherto known. On the other Hand it must be allowed, that many useful Separations, Compositions, and Recompositions of Bodies have already been made; and that many

more might still be made, if natural Philosophy, and Chymistry, were farther improved. But with Regard to mineral Waters, when the Affair is fully examined, it should seem that the Means of discovering their Contents, Virtues, and Uses, are already in the Hands of Man, and that nothing more is wanting to compleat the Work, than a prudent, scientific, and guarded Manner of using these Means; or, to speak plainly, the principal Thing required is the Art of Induction. For, even the present, common, and very imperfect Chymistry supplies us with numerous Experiments, and sure Ways of discovering the Contents of Liquors, and bringing them under the direct Cognizance of the Senses; and a higher or more philosophical Chymistry, as now practised by many skilful Philosophers, will here penetrate farther; so that, if Chymistry should continue to improve, scarce any Analysis, of this Kind, would, at length, prove too hard for it.

XC. But, to come closer to the present Objection, What are those Things, suggested by the Imagination, to be contained in mineral Waters, which no Experiments, hitherto known, can discover? Let us consider, whether these Things are not Creatures of the Imagination; for so they must be allowed, by Men, to be, if they are not discoverable by Sense, Experiment, or Reason. But if at present discoverable by Sense, or Experiment, the Objection vanishes, as depending upon a Supposition that they are not thus discoverable at present. The Strength of the Objection, therefore, seems to be this, that the Imagination, by casting about, suggests to the Reason, that there are many compound, or mixed Bodies, which cannot, by any Experiments hitherto known, be resolved into their constituent Parts; so as fairly to exhibit these Parts, in their simple State, separated from each other, and unaltered in their Properties; but that either some will be so changed, or fly off, in the Operation, as not, by a Re-union, to exhibit the same Subject again; or, with Regard to mineral Waters, that these may naturally contain various Parts, so subtile, so intimately united, or of a Nature so utterly unknown, as not to be reached by any Artillery of chymical Experiments; and yet, that these Waters may manifest particular Virtues, or perhaps have pernicious Effects, in the Body, on Account of some latent Properties in them, which no dead, languid, or incompetent Trials, made out of the Body, are subtile or exquisite enough to discover.

XCI. We have endeavoured to obviate this Objection, in the Course of our Procedure; but to clear it up more expressly, and answer it fully, with particular Instances, and Examples, it would lead us too far from our Purpose, and engage us deeper in Chymistry than is at present necessary. Those, therefore, who require more Satisfaction, in this Point, than they can derive from the present Enquiry (though we hope that will be sufficient) may please to consult the chymical Lectures, already more than once referred to, particularly those which treat of Water, and of synthetical and analytical Chymistry. We shall, however, here add, as a Supplement to the Way, already laid down, for discovering the Contents of mineral Waters, the general Method of making an Analysis thereof, whereby whatever known or unknown Substances, especially those of a fixed Nature, contained in a Water, may be rendered sensible, or brought to their true Form and Appearance, so as to be farther examined, or have their respective Natures and particular Properties disclosed.

A general Method of analysing mineral Waters.

I. Let the first Intention be to make a natural Analysis of the Water, or to see what Changes it will spontaneously undergo, or what Parts, or Matters, it will separate into, by standing in open and close Glasses. Thus, low, cylindrical, open Glasses, being filled with the Water at the Well, let them be directly examined by Eye, the Smell, and the Taste; and again, after standing for an Hour, two Hours, four Hours, a Day, or several Days, to discover the sensible Alterations occasioned by this Standing, as compared with more of the Water, fresh taken up; and particularly to find, whether any visible Separation of Parts ensues, and if a Scum appears on the Top, or a Sediment at the Bottom, let them be carefully collected and preserved, for farther Examination; observing to keep a Diary, or Register, of all the Phenomena, and the whole Procedure. And let the like Experiment, or Observation, be made in Glasses exactly closed, to discover the Changes which the Water will then undergo, in its sensible Properties, and the Matters it thus separates, or throws off to the Top, Sides, or Bottom of the Glasses.

II. Let the Experiment, in some of the open cylindrical Glasses be prosecuted, by keeping them in a warm Place, till the aqueous Part is totally exhaled, and only a dry Substance left behind; which, being reserved, may be compared with the dry Substance gained from the same Water, by Evaporation over the Fire, in order to shew, whether there be any remarkable Difference betwixt the two dry Substances, thus produced.

III. Let the next Intention be to make an exact chymical Analysis of the Water, and to compare it with the former.

In order to this, let a certain Quantity of the Water, suppose five or six Pounds Troy, be, at the Well-head, put into a glass Retort with a wide Neck, and a clean glass Receiver be immediately luted on, in an exact Manner; let the Retort now be directly placed in a proper Furnace, and worked with a moderate Heat, so as barely to make the Water simmer; and proceed, with this Degree of Heat, till all the aqueous Part is come over, and only a dry Substance left at the Bottom of the Retort; then, letting the Vessels cool, take away the Receiver, carefully weigh the aqueous Liquor, and keep it a-part in a clean well-stopped Glass; and, lastly, separate the dry Matter from the Bottom of the Retort; weigh it, whilst thoroughly dry, and put this also into a clean dry Glass, to be kept well stopped.

IV. At the Beginning of this Operation, as soon as the Retort grows warm, let Care be taken to observe, whether any volatile or explosive Vapour comes out at the Joint, where the Luting was applied; for, if there does, this shews that there is a Spirit, or light subtle Matter, separable from the Water, tho' not capable of being thus collected; whence we are admonished to use another Method, in order to render it still more sensible, and subject it to particular Experiments, according to the Directions of the preceding Section.

V. The aqueous Part, obtained by the Distillation, may be examined with various Additions, or by applying it various Ways, in order to discover, if in any Respect it differs from pure distilled common Water, or whether it be impregnated with any saline or mineral Particles, like those found by the same Trials, in the natural mineral Water. Thus, as was formerly observed, if it contains any Sea-salt, it will be apt to turn white with a Solution of Silver; if any Vitriol of Iron, it will turn black with powdered Galls; or, if any Sulphur, united to an alkaline Salt, it will turn black, in Time, with almost any metallic Solution. And thus its Difference from common Water, or the mineral Water, that afforded it, may be assigned by a proper Variety of Experiments.

VI. Let Part of the dry Matter, left behind upon the Distillation, be put to, or gently boiled with five or six Times its own Weight of the purest distilled common Water, thus freed and before-hand proved; by particular Experiments, to be freed from any sensible known mineral Particles; for by this Means all the saline Part of the Matter will be taken up by the pure Water, in the Form of a Solution; which being filtered, evaporated to a proper Height, and set to crystallize, will thus give out its Salt, in the Figure or Form peculiar to itself. And tho' several Salts should be lodged in the same Solution, they may all, by repeated Evaporations, and Crystallizations, be obtained separate (according to what has, more than once, been observed before) and examined to try whether they are of a known or unknown Kind: And though the Kind of any Matter, thus procured, should happen to be utterly unknown; yet certain chymical and philosophical Experiments might be contrived to discover its Properties and Uses, according to the common Rules of Chymistry, and experimental Philosophy. Thus, for Example, it is easy to determine whether any Salt, thus obtained, be of an acid or alkaline Nature, by knowing the Properties of each Kind, as they are above laid down; for acid Salts turn red with Syrup of Violets, and become neutral with Alkalies, &c. And alkaline Salts turn green with the same Syrup; become neutral with Acids; cause Sal Ammoniac to emit a volatile urinous Vapour; turn a Solution of sublimate yellow, &c.

VII. But the Difficulty may seem greater to determine the neutral Species of Salts. And here we learn, from natural History, and Chymistry, that the neutral Salts dissolved, or washed out of the Bowels of the Earth, by Water, are chiefly Sea-salt, and such as consist of a sulphurous, or vitriolic Acid (that is, an Acid like the Acid of Brimstone or Vitriol) and a Salt, or Earth, of an alkaline Nature. But Sea-salt is easily discovered by its Taste, cubical Figure in Crystallization, and the particular white Vapour which it largely affords upon mixing it with Oil of Vitriol. The other Kind of neutral Salts may be distinguished from all others by the Property they have of producing or regenerating Sulphur, upon being mixed, and melted with Salt of Tartar, and powdered Charcoal. Thus, for Instance, if two Ounces of such Salt be mixed with an Ounce of Salt of Tartar, and an Ounce of powdered Charcoal; and the Mixture be melted in a Crucible, there will thus be produced a reddish-coloured Mass, of a sulphurous alkaline Taste, that gives a high yellow or golden Tincture to rectified Spirit of Wine; which Tincture will discolour Silver, or turn it black; and, being precipitated by an Acid, affords a true Lac Sulphuris, that may be sublimed, and melted into Brimstone, like the common.

VIII. What remains behind, after a perfect Elixation, or total Dissolution of the saline Matter, by Means of boiling Water, comes under the general Name of Earth; which by repeated Washings in pure distilled Water, and each Time pouring off the Water, may happen to be separable into terrestrial Matters of different Kinds, according to their different Natures, or specific Gravities; as, for Example, into solar Earth, or Oker, calcareous Earth, and Sand, or other Species of Earths; which,

if thus separable, may be examined by particular Additions, or by the Fire, in order to determine their Kinds and Natures; as, whether they are vitrescible, or convertible into Glass, by a strong Fire of Fusion; or, whether they will calcine, and turn into a Kind of Lime; or, whether they will yield any known or unknown metallic Substance or Regulus. But, if the terrestrial Matter be not thus separable by Washing, let the Whole be examined in the Fire, to try, if it will here separate into Parts of different Kinds, as it may, if a Compound, into a calcareous, a metallic, and a glassy Part, being either assayed alone, or with the Assistance of Borax, Glass of Lead, or other suitable Fluxes. And if the metallic Portion should be small, so as not to be collected separate, let it be fused with the Powder of pure crystalline Glass; to see if it will thus tinge the Glass of any particular Colour, whereby a Conjecture may be formed of the Species of the Metal it contained; as, whether Iron, Copper, Silver, &c. which, reduced to a Calx, are found to give specific or respectively different Colours to crystalline Glass in Fusion.

IX. And after this Manner we apprehend that a tolerable exact and instructive Analysis may be made, and an useful, if not satisfactory Account given of the Contents and Virtues of any mineral Water.

X. It is but just, at the Conclusion of this first Part of our Undertaking, that we ask Pardon of the Reader (who may be much better acquainted than ourselves with the Ways of examining mineral Waters) for having dwelt so long upon the Method of doing it, and inculcated some Particulars several Times over: But, to say the Truth, as the Treatises, which we have read upon this Subject, appear to us far from laying the just Foundations of the Thing, or from observing a proper Form of Induction; and as many have objected to the Thing itself, on a Supposition of its being precarious and uncertain, we found ourselves in some Measure obliged, for the Sake of the Many, to trespass upon the Patience of a Few, and endeavour, even by some Degree of Repetition, to set this Matter in a fair Light, that every one might be able to exercise a free Judgment upon it. And in this Respect, it is to be feared, we have rather fallen short than exceeded. *Shaw.*

Thus much I thought proper to specify with Respect to mineral Waters in general, and of some few in particular, by Way of Example. The Virtues and Uses of the British mineral Waters will be farther taken Notice of, as their Names occur.

ACIES. Because *Acies* signifies the sharp Edge or Point of Instruments, which are generally made of Steel, some Authors, of the middle and lower Ages, have called Steel itself *Acies*, and thus Rulandus interprets it. But the Name is arbitrary, and has the Authority of no Author of Credit, that I know of, to support it.

Oculorum Acies also signifies the Sight, but I think *Acies* alone, without mentioning the Eyes, is never used in this Sense.

ACINESIA. From a Negative, and *κινέω*, to move. Immobility in general. But it is used by Galen to express the State of Rest of the Pulse, or the small Space of Time which passes betwixt the Contraction and Dilatation of the Artery. *Galen*, de Differentia Pulsuum, L. 1. C. 7.

ACINIFORMIS, or ACINOSA *Tunica*. A Coat of the Eye, called also *Tunica Uvea*. See *UVEA*.

ACINOS, Stone or Wild Basil.

The CHARACTERS are,

It hath Leaves like those of the lesser Basil. The Cup of the Flower is oblong and furrowed. The Flowers are produced in Bunches, on the Top of little Foot-stalks, which arise from between the Foot-stalk of the Leaf and the Stalk of the Plant, in which it differs from *Serpyllum*. *Miller*.

It is the *κύνω* Diosc. the *Acinos*, Offic. Dill. Cat. Giff. 125. Rivin. Irr. Mon. *Acinos Rivini*, Rupp. Flor. Jen. 188. *Acinos Anglica*, Merc. Bot. 1. 16. Phyt. Brit. 2. *Acinos multis*, J. B. 3. 259. Raii Hist. 1. 553. Synop. 3. 238. Chab. 411. Buxb. 5. Boerb. Ind. A. 176. *Acinos sive Ocimum Sylvestre*, Hist. Oxon. 3. 404. *Acinos Ocimum Sylvestre*, Ger. 548. Emac. 675. *Acinos Clinopodium arvense Ocimi facie*, C. B. Pin. 225. Tourn. Inst. 195. Elem. Bot. 163. *Acinos minus seu vulgare*, Park. Theat. 21. WILD BASIL.

It grows on chalky Hills, and flowers in June. The Herb is used, and checks the Overflowing of the Menstrues, and a Diarrhoea. It cures Boiles, and St. Anthony's Fire, being washed with the Decoction. *Dioscorides*.

Its Virtues are much the same with those of Calamint, but a little weaker. *Boerhaave*.

The London Herb-women sell it instead of Mountain Poley. *Dale*.

Miller mentions another Species of this Plant, called, *Acini pulchra Species*. J. B. Broad-leaved Austrian Wild Basil. This is preserved only in botanic Gardens.

ACINUS. It signifies, strictly, a Grape, but is applied to many other Fruits, or Berries, that grow in Clusters, as those of Elder and Ivy; those are distinguished from *Baccæ*, a Sort of Berries

Berries that grow single, as those of the Olive, or Laurel. But *Acinus*, in the common Signification, as now used, is the Stone of a Grape; hence *Uva exacinata*, Grapes that have the Stones taken out. *Raii Hist. Plant. Dale from Galen, de Alimentorum Facultatibus.*

Hence some Anatomists have called Glands, that grow together in Clusters, *Acini Glandulosi*, as those in the Liver. *Blancard.*

ACIS. Ἀκίς. It signifies in Hippocrates the Iron Head of a Spear, or Dart, or any wounding Instrument.

ACMASTICOS. Ἀκμάστικος. The Name of a particular Sort of continual Fever, of which Actuarius gives this Account: Of Fevers arising from Putrefaction, some are called continual, or continent (συνέχεις τε καὶ σύντοχοι) others, intermittent (διολέγοντες). Of the former, those are called Isotoni, or *Acmaistici* (ισότονόι τε καὶ ἀκμάστικοι) which, during the whole Course, maintain themselves at the same Pitch, or Vigour, without either increasing or diminishing in Point of Violence. Others are called *Epacmaistici* (ἐπακμάστικοι) and these make a Progress and Increase, in Force and Violence, to the Time of their Solution. The third Sort are called *Paracmaistici* (παρεκμάστικοι) which diminish by Degrees, till they at last entirely cease.

ACME. Ἀκμή. This in general signifies that State of any Thing, wherein it is in the utmost Perfection, and thus Hippocrates seems to explain it in his *Treatise de Prisca Medicina*.

The Word usually signifies the State of an animal Body, arrived to its full Vigour, and before it begins to decline. Hence the medicinal Writers have applied it to that State of a Distemper wherein it is increased to its utmost Degree of Violence. In this Sense Hippocrates uses it *Apb. 9. and 10. L. 1. and in many other Places.*

Acme also is a Term in Gymnastics, used to express the highest Pitch of Exercise, and in this Signification it is used by *Galen.*

Foefius is of Opinion, that ἄκμας should be read instead of ἄκνας, in Aetius, *Tetrabib. L. 4. C. 13.* and that here it signifies a small Pustule, or Pimple, so called, because it generally arises about the Time (τῆς ἀκμῆς) that the Body is in full Vigour; and, in Confirmation of this, he quotes a Passage from Cassius, who thus interprets Ἀκμας.

Quincy makes a Mistake, when he derives ἄκμη from ἀκμάζω, to grow strong, or to be in full Vigour, for ἀκμάζω is derived from ἄκμη. Others derive it from α Negative, and κάμνω, to be weary; but this seems far fetched, and not much to the Purpose. And indeed ἄκμη seems to be itself a Radix, from whence some other Words are derived.

Acme also signifies a sharp Point or Edge.

ACMELLA. This is called *Acemella*, Offic. *Akmella*, *Abamella*, *Herm. Mus. Zeyl. 17.* *Chrysanthemum bidens Zeylanicum Amella dictum*, Breyn. Dissert. Bot. 12. *Chrysanthemum Bidens, seu Bidens Zeylanicum, flore luteo, Lamii folio, Acemella dictum*, Ejusd. o. *Cannabina aut Bidens Urticæ folia Indica lithontrip-tica*, D. Hotton. Act. Philos. Lond. N. 257. p. 365. *Senecio Indicæ Orientalis Ocymii majoris folio profunde crenato*, Pluk. Almag. 343 Phytog. 315. *Ceratoccephalus Ballotes foliis Acemella dictus*, Acl. Reg. Par. A. 1720. p. 326. ACMELLA, ACHMELLA, and ADMELLA. Dale.

It grows plentifully in the Island of Ceylon, and is brought from thence into Europe.

Ray gives the following Account of the *Acemella* from P. Hotton, Professor of Botany at Leyden.

The Flower of this Plant grows on the Top of the Stalks, and consists of a great many tubulous yellow Floscules, which by their Union form a Head sustained by a Perianthium of six Leaves. When these Floscules fall off, the Seeds appear, which are of a dark Grey, long, and smooth, except that at the Top, immediately under the Floscules, they are furnished with a double Beard, which makes them forked or horned. The Stalk is square, and clothed with Leaves that grow by Pairs, like those of the Lamium, or Nettle, but longer, and more pointed.

It has obtained great Reputation for its Virtues in dissolving the Stone. An Officer, in the Year 1690, affirmed to the Dutch East-India Company, that he had cured above a hundred of the Stone, and nephritic Complaints, by this Plant. And the Governor and supreme Council, in the Island of Ceylon, gave the same Year two Instances of Patients, who had been cured of the Stone by this Plant, in whom a great Number of small Stones, and a great Quantity of Sand, had been expelled, with very little Pain.

In the Year 1699, the first Surgeon of the Hospital in the City Colombo, in Ceylon, confirmed the Efficacy of the *Acemella* in the Stone, and nephritic Disorders, by Letters to P. Hotton. This Surgeon says, he observed three Sorts of the *Acemella*. The first with a pale green Leaf, and yellow Seed; the second with a Leaf of a deep Green, and yellow Seed; the third with a black Seed, and much larger Leaves than the other two; which last, he says, are of the greatest Virtues. He adds, that each Plant produces above ten thousand Seeds.

He farther says, the Leaves and Seeds are the most effectual, but that the Root, Stalk, and Branches are used.

The Leaves are gathered before the Flowers appear, and are dried in the Sun. These are either taken in Powder, mixed with some convenient Vehicle, or in Infusion like Tea.

A Spirit is also prepared by Distillation from the Root, Stalk, and Branches, infused in Spirit of Wine.

Another Surgeon of the above-mentioned Hospital says, he used the Flowers, the Extract of the Root, and the Salt, with Success, in Pleuritis, Colics, and Fevers.

To the Description of this Plant given above from Horton, may be added, from Johannes Philippus Breynius, that the Root is white and fibrous; the Stalk almost four-square, about a Foot high, and divided into Branches; the Leaves oblong, mucronated, somewhat rough, and separated on the Edges. The Flowers grow on the Extremity of each Branch.

Breynius says, this Plant is diuretic, that it cures nephritic Pains, expels the Stone from the Kidnies, relieves in Ischurics, Stranguries, and Dysuries, and that it restores the Menstrues, when suppressed. The Leaves are endued with the greatest Virtues, which consist in the Fineness, Volatility, and Penetrability of their Particles, whence they provoke Urine and Sweat, open Obstructions, stimulate to Excretion, expel the Stones from the urinary Passages, and, if not very hard, dissolve them. For these Purposes it must be given by Way of Infusion, like Tea, in pretty large Quantities, and repeated two or three Times a Day, always warm. But at the same Time a great deal of diluting Liquor must be taken; and also Liquorice, Syrup of Marsh Mallows, or something of a soft relaxing Quality, should be given with it.

Or Arack, impregnated with this Spirit, may be taken twice or three Times a Day, in a Glass of Rhenish or French Wine, or some Anti-nephritic Decoction, always adding to it Syrup of Marsh Mallows, for then Gravel, or Stones, are expelled with very little Pain.

ACNE. Ἀκνῆ. Gorræus interprets this a small hard Tubercle arising on the Face. Foefius thinks it should be read in Aetius, from whence Gorræus quotes it, Ἀκμας, instead of Ἀκνας. See ACME.

ACNESTIS. Ἀκνηστis. That Part of the Spine of the Back, which reaches from the μετάρρεον, which is the Part betwixt the Shoulder-blades, to the Loins. This Part seems to have been originally called so in Quadrupeds only, because they cannot reach it to scratch, from α Negative, and κνάν to scratch.

It is also the Name of an Herb, mentioned by Nicander, which some take for a Nettle, others for a Squill. *Gorræus.*

ACO. A Fish, called also Sarachus, and Sarachinus, and Aquo. It is mentioned by Aldrovandus, and is said to be very good Food. It is common in Epirus, and Lombardy, and in the Lake Como in the Dutchy of Milan.

ACOE. Ἀκοή. The Sense of Hearing.

ACOELIOS. Ἀκοίλιος, from α Negative, and κοῖλος, the Belly. Without Belly. It is applied to those who are so wasted and extenuated, as to appear as if they had no Belly. *Castellus from Galen.*

ACQUITUS. Ἀκοιπτε. An Epithet for Honey, mentioned by Pliny, because it has no Sediment, which is called κοίτη. *Constantine.*

ACOLASTOS. Ἀκόλαστος, from α Negative, and κολλάω, to restrain. It signifies lewd, or obscene. Hippocrates, *Epid. L. 4. S. 7.* speaking of a young Man in a Fever, says, he began to talk idly, as he thinks, on the eighth Day (τρίτον τὸν ἀκόλαστον) in a very obscene Manner.

ACON. A missive Instrument, made Use of by the Antients in their Exercises. Schulzius thinks it was not much different from the Discus. See DISCUS.

ACONE. Ἀκόνη. A Mortar. Thus Foefius and Gorræus explain the Word which is used by Hippocrates, in the latter Part of his *Treatise de Ratione Viæ in Acutis*; ἐπ' ἀκόνης τείβων, beating the Ingredients, mentioned before, in a Mortar. Hippocrates also mentions it in his little Piece, *de videndi Acie*, where he directs a Piece of the Flos Aëris (ἀνθος χαλκῷ) to be levigated (πρὸς ἀκόνην) against a hard Stone, or Whetstone, as Foefius seems to understand it. But I do not see the least Reason to believe, the Author means two different Things in these two Passages. In both Places, the Ingredients to be powdered are very hard, and scarce reducible to a Powder in a Mortar. In the First, Ebony and burnt Copper; in the Second, the Flos Aëris, which seems to be a Sort of Scoria of Copper. It is therefore more probable, that the Author in both Places means by Ἀκόνη, a Stone to levigate upon, such as the Apothecaries now make Use of for the same Purpose. And this is the more likely, because the Word, in its most general Sense, signifies a hard Stone, or Whetstone; and because Dioscorides, *L. 1. C. 129.* mentioning Ebony, says, it acquires a reddish Colour, τερφθεῖσα ἐπ' ἀκόνης, which I should translate, *levigated on a Stone.*

ACONION. Ἀκόνιον. This was a particular Form of a Medicine amongst the ancient Physicians, made of Powders levigated

levigated on a Stone, and probably, like Collyria, used for Disorders of the Eyes, as may be inferred from Dioscorides, L. 1. C. 129, who, speaking of the Effects of Ebony on the Eyes, says, it operates better *ἢ τῆς τοῖστας ἐξ αὐτῆς ἀκόγιον*, if it is reduced to the Form of an *Aconion*: And L. 5. P. 344, speaking of the Lapis Hæmatites, he says, of it are made Collyria, and (*Ἀκόνια*) *Aconia*.

ACONITIFOLIA. A Name of the Anapodophyllon Canadense Morini, mentioned in Boerhaave's *Index*.

ACONITON. *Ἀκόνιτον*, or *Ἀκονίατον*, from *α* Negative, and *Κόνια*, Lime or Plaister. It signifies Not plaistered, and is applied to Vessels not lined within Side. Thus Dioscorides, L. 4. C. 65, directs Cantharides to be put into a Vessel (*Ἀκόνιτον*) *non picatum*. The Interpreters translate it, *not pitched*. Hence we may infer, that it signifies, in general, not lined with any Thing.

ACONITUM. Wolfs-bane. [*Ἀκόνιτον*, which some derive of *Ἀκόν*, a Whetstone, or Rock, because it grows on bare, rocky, or stony Places; according to Pliny, which Etymology Ovid follows, where he says:

*Quæ, quia nascuntur dura vivacia caute,
Agrestes Aconita vocant* —

Others of *α* Negative, and *Κόνις*, Dust, because it grows without Earth; others of *Ἀκόν*, *Ἀκν*, Dart, because the Barbarians used to poison their Darts therewith; others of *Ἀκονίζομαι*, to accelerate, because it hastens Death.] The English call it Wolfs-bane, of the Anglo-Saxon, *Wulfes-Bane*.

The CHARACTERS are,

It hath circumscribed, roundish, divided Leaves. The Flowers consist of four Leaves, which are shaped like a Monk's Hood. Each of these Flowers is succeeded by three or more Pods, which contain several rough Seeds. *Miller*.

There are many Sorts of the *Aconitum*.

1. *Napellus*, Offic. *Napellus vetus cæruleus*, Ger. 823. Emac. 972. *Napellus vetus*, Park. Theat. 318. *Napellus vetus flore cæruleo*, Park. Parad. 215. Buxb. 233. *Napellus flore cæruleo*, Rivin. Rupp. Flor. Jen. 234. *Aconitum cæruleum seu Napellus primus*, C. B. Pin. 183. Tourn. Inst. 425. Elem. Bot. 337. Boerh. Ind. A. 300. Hist. Oxon. 3. 463. *Aconitum magnum Napellus*, Chab. 531. *Aconitum magnum purpureo flore*, vulgo *Napellus*, J. B. 3. 655. Raii Hist. 1. 702. MONKS HOOD.

2. *Aconitum Ponticum*, Offic. *Aconitum luteum Ponticum*, Ger. 821. Emac. 970. *Aconitum Lycoctonum*, Chab. 531. *Aconitum Lycoctonum luteum*, C. B. Pin. 183. Hist. Oxon. 3. 462. Tourn. Inst. 425. Elem. Bot. 337. Boerh. Ind. A. 300. *Aconitum luteum Ponticum serotinum flore albido*, Park. Theat. 310. *Aconitum flore Platani, flore luteo pallescente*, J. B. 3. 652. Raii Hist. 1. 704. Dill. Cat. Giff. 97. *Napellus flore luteo*, Rivin. Irr. P. Buxb. 233. Rupp. Flor. Jen. 234. WOLFS-BANE. *Dale*.

Both these Sorts are cultivated in Gardens, flower in July, and are alike endued with a pernicious Quality to Man and Beast. The latter is called by Dioscorides *Lycoctonum*, and *Gynoctonum*, that is, Wolfs-bane, and Dogs-bane, and is described to have a Leaf like a Plane, only longer, blacker, and thicker indented, to have a Stalk like the Pedicle of Fern, bare and about a Foot high, to contain its Seed in oblong Pods, and to have a blackish Root like the Sea-onion.

3. *Anthora*, *Antithora*, Offic. *Anthora*, Park. Parad. 215. *Anthora, sive Antithora*, Chab. 530. *Anthora, sive Aconitum salutiferum*, Ger. 820. Emac. 969. *Antithora flore luteo Aconiti*, J. B. 3. 660. Raii Hist. 1. 705. *Aconitum salutiferum, sive Anthora*, C. B. Pin. 184. Tourn. Inst. 425. Elem. Bot. 338. Boerh. Ind. A. 300. *Aconitum salutiferum luteum tenuifolium, sive Anthora*, Hist. Oxon. 3. 463. HEALTHFUL WOLFS-BANE.

This is cultivated in botanic Gardens, and flowers in June. Its Root is used, which is small, thick, and branched, of a dark brown Colour without, but of a pale white within, of an acrid Taste, and unpleasant Smell. *Dale*.

The *Anthora*, according to Monsieur Tournefort, is a Plant something scarcer than Gentian, and is a Species of the *Aconite*, though this is a Counterpoison to such as eat the Root of the *Aconite*, or deadly Wolfs-bane. It is for this Reason Bauhine calls it *Aconitum salutiferum*, the healing *Aconite*, or *Anthora*. This is composed of two short wedge-like Roots, very bitter, white, and fleshy within, but brown on the Outside, and decked with Abundance of Fibres. The Stalk arises about two Feet high, surrounded with many long Leaves; the Flowers grow about the Stalk like an Ear of Corn, are yellowish, and like a Head covered with a Helmet; the Seeds are black, wrinkled, and grow in Sheaths, or membranous Cells, five or six of them joined together. The Root of this is a good Antidote. The Peasants who gather this on the Alps, and Pyrenees, use it with Success against the Biting of mad Dogs, and to cure the Colic; they take it for a sovereign Remedy for those who have eat the *Thora*, or deadly *Aconite*. *Pomet*.

The *Aconitum salutiferum*, or *Anthora*, quasi *Antithora*, because this is reckoned a Counter-poison to that called the

Thora, which is a Sort of *Ranunculus*, or Crow-foot, and of the Species of the *Aconite*, or Deadly Wolfs-bane. The Root is useful in Physic, as being alexipharmic, cardiac, stomachic, and good against the Wind Colic. It contains a great deal of volatile Salt, and essential Oil. *Lemery*.

To these three Species Miller adds the following:

Aconitum luteum majus, ampliore caule, amplioribusque foliis. Dod. The largest yellow Wolfs-bane.

Aconitum Pyramidale multiflorum. H. R. Par. Pyramidal Wolfs-bane with many Flowers.

Aconitum Lycoctonum humili caule ac minoribus foliis. Dwarf Wolfs-bane with lesser Leaves.

Aconitum Pyrenaicum, ampliore folio tenuius laciniato. Tourn. Wolfs-bane of the Pyrenees, with larger Leaves, cut into narrow Segments.

Aconitum cæruleum napelli flore, C. B. P. Autumnal Wolfs-bane, with a blue Flower.

Aconitum coma inflexa, foliis angustioribus, C. B. P. 283. Narrow-leaved Wolfs-bane, with inflexed Heads.

Aconitum coma inflexa, foliis latioribus, Tourn. Broad-leaved Wolfs-bane, with inflexed Heads.

Aconitum inflexa coma maximum, C. B. P. Wolfs-bane, with the largest inflexed Heads.

Aconitum, seu Napellus 1. flore roseo, C. B. P. Wolfs-bane, with a Rose-coloured Flower.

Aconitum, seu Napellus 1. flore albo, C. B. P. Wolfs-bane, with a white Flower.

Aconitum, seu Napellus 1. flore ex cæruleo & albo variegato, C. B. P. Wolfs-bane, with a Flower variegated from blue to white.

Aconitum violaceum, seu Napellus 2. C. B. P. Wolfs-bane, with a Violet-coloured Flower.

Aconitum purpureum, seu Napellus 3. C. B. P. Wolfs-bane, with a Purple-coloured Flower.

Aconitum cæruleum minus, sive Napellus minor, C. B. P. Lesser blue Aconite, or Wolfs-bane.

Aconitum cæruleo-purpureum, flore maximo, sive Napellus 4. C. B. P. Wolfs-bane, with a very large Purple-blue Flower.

Aconitum lycoctonum orientale, flore magno albo, T. Cor. Eastern Wolfs-bane, with a white Flower. *Miller*.

Some of these are called *Lycoctonum* [in English Wolfs-bane] because the Wolf-hunters used to mix them amongst Flesh, and lay it for the Wolves, who, eating the same, were poisoned.

All these Plants are poisonous on Account of their caustic and suffocating Quality, by which such Animals, as eat of them, have their Deglutition stopped, while their internal Parts are corroded.

The third Sort is said to be an Antidote, but Matthioli was the first who discovered this, and all the rest have no more than transcribed him. Therefore Bauhinus does well in advising us not to trust to him, because he himself transcribed them from others. *Boerhaave*.

Galen advises, as an Antidote against the Poison of *Aconitum*, a Handful of Rue bruised, to be drank in Wine unmixed with Water, and says, in this Case also, the fat Broth of a Hen may be of Service.

ACONITUM HYEMALE. Winter Wolfs-bane.

This has Leaves like those of the Wolfs-bane; the Flowers (which are produced in the Center of the Leaves) are like those of the *Ranunculus*, with many Stamina, or Threads in the Center, and in all other Respects agree with the Hellebore, to which Boerhaave has made it a Congener.

It is one of the earliest Flowers in the Spring, often appearing in the Middle of January, and therefore deserves a Place in every curious Garden.

ACONTIAS. *Ἀκοντίας*. The Name of a very poisonous Serpent, mentioned by Aëtius, Paulus, Lucian, Aldrovandus, and others. It is also called Cenchreas, and Jaculus. See **CENCHREAS**. *Castellus. Constantine*.

ACOPIS. *Ἀκοπίς*. The Name of a precious Stone, like Glas, marked with Spots of a gold Colour, thus named, because Oil, wherein it has been boiled, is said to be a Remedy against Weariness. *Pliny. Constantine*.

It is derived from *α* Negative, and *Κόπος*, Weariness.

ACOPON. *Ἀκοπον*, from *α* Negative and *Κόπος*, Weariness. It signifies originally whatever is a Remedy against Weariness, and is used in this Sense by Hippocrates, *Aph.* 8. L. 2. But, in Time, the Word was applied to a Sort of Ointment of a particular Consistence, of which Celsus gives some Examples, L. 5. C. 24. And the Forms of many more are to be found in the Works of Galen and other medicinal Writers.

ACOPA. (*Ἀκοπα*) also signifies, not eaten by Moths. Thus Theophrastus, speaking of the Citron, says, it preserves Garments *Ἀκοπα* (which Pliny explains by *Arctique Animalium noxia*) from being eaten by Moths.

In Regard to the Medicines, called *Acopa*, the following Passages from Galen and Paulus will suffice to give an Idea of them.

The End and Intent of the *Acopa Pharmaca* are known by the very Name; for Indispositions of Body which are caused by long or vehement Motion, whether they affect the whole System, or the Parts principally exercised, are called *Κόπος*, *Lassitudes*. Now such Indispositions are mostly troublesome and incommodi-

ous to Persons, while they are in Action or Motion, but, if arrived at a more than ordinary Pitch, are subject to disturb their Repose after their Toil. [But though Physicians prescribed no Remedy against Lassitudes, but only for an inveterate Pain, that lay deep in the Body, or for Difficulty of Motion, or for the Hardness, Tension, or scirrhus Tumor of any Part, they accustomed themselves, at length, to call such Medicines, as were adapted to the foresaid Cases, by the common Name of *Acopa*; and likewise all of that Kind, provided they were of a liquid Consistence, like the *Acopa*, which are much like the Cerates used for Luxations and Fractures.] For the most liquid of that Kind of Composition is what the modern Physicians call a Cerelium, the next are the Acopous Ointments, and then comes the liquid Cerates, of a thicker Consistence than the two former. After these follows the Cerate of tender and soft Ingredients, as it is called, and last of all, the Amolynta [Things that will not soul] much like what are properly called Epithems. Next after this Class follows the Composition of Plaisters, which also admits of no small Difference in Degrees of Consistence. Wherefore some Physicians have called a certain Composition Ceratomalagmata, giving it that Name merely for its Consistence, which is not so liquid as that of Epithems, nor yet so hard as what belongs to Plaisters.

As all these Differences do not express the Virtues of the Remedies, but only give an Idea of their Consistence, so the Appellation of *Acopa* formerly signified the Qualities of the Medicines, but afterwards denoted only their Degree of Consistence. For this Reason they were obliged to name them with Distinctions; as, for Example, this was a laxative *Acopum*, that an emollient or warming one; this an Anodyne, another a Drawer; or, as they were suited to particular Disorders, as, for Instance, the Palsy, the Sciatica, or Pleurisy, or all Pains in general. *Gal. de Comp. Med. L. 7. C. 21.*

Those Remedies, which at first were called *Acopa* [relieving Lassitude] extended their Name, by Degrees, to other Medicines of a like Consistence, even though intended to raise a great Heat in the Body. *Idem de Comp. Pharm. secundum Loc.*

Acopa took that Name, because they were Remedies at first provided against the Evils and Infirmities proceeding from Lassitude, such as Tensions, Pains in the Bones, &c. They are also proper on many other Occasions, for some of them are warming, others mollifying. *Ægin. L. 7. C. 19.*

ACOPŌS. A Plant, mentioned by Pliny, said to be the same as the Anagyris (*Ἀνὰγυρις*) of Dioscorides, which, Gerard says, is the Bean Trefoil.

ACOR. Sourness. In a medicinal Sense it generally signifies what, under the Article ACIDUM, I have called Acidity, or an acid Acrimony in the Stomach. Helmont says, the vital Ferment of the Stomach, which digests the Aliment, is endued with a specific *Acor*, but that this *Acor* is not the Ferment itself, but only its Organ. Later Discoveries have proved all this Doctrine Chimerical.

ACORDINA. Indian Tutty. *Rulandus.*

ACORIA. *Ἀκορία*, from *α* Negative, and *κορέω*, to satiate. It signifies, according to the Derivation, Infatibility. But in Hippocrates, *Epid. L. 6. Sect. 4. Aphor. 20.* it means nothing more than a good Appetite and Digestion.

ACORITES VINUM. A Wine, mentioned by Dioscorides, made by infusing eight Ounces of Acorus and as much Liquorice, for three Months, in six Gallons of Wine. It is good in Disorders of the Pleura and Breast, and provokes Urine. *Dioscorides, L. 5. C. 73.*

ACORNA. *Ἀκορνά*. A Plant, mentioned by Theophrastus, of the Thistle Kind. It is described as having a Stalk and Leaf covered with a prickly Down and acute prickly Leaves, like the *Atractylis*, or Distaff-thistle.

Pliny seems to take it for a Tree of the Ilex Kind, like the Holly, or Juniper.

ACORTINUS. A Lupin. *Rulandus.*

ACORUS. *Ἀκορον*.

This is the *Acorus verus*, *Calamus aromaticus*, Offic. *Acorus verus*, *sive Calamus Officinarum*, Park. Theat. 140. Raii Hist. 2. 1313. Synop. 3. 437. Mer. Pin. 2. *Acorus verus*, *sive Calamus aromaticus Officinarum*, C. B. Pin. 34. Theat. 626. Boerh. Ind. A. 2. 167. Dill. Cat. Giff. 110. Buxb. 5. *Acorus verus*, *sive Calamus aromaticus*, C. Commel. Plant. Usu 18. *Acorus verus*, *Officinis falso Calamus*, Ger. Emac. 62. *Acorum legitimum*, Rupp. Flor. Jen. 261. *Acorus vel Acorum, Calamus aromaticus*, Chab. 244. *Typha aromatica clavā rugosā*, Hist. Oxon. 3. 246. SWEET FLAG or CALAMUS. *Dale.*

This Plant is distinguished from all others, in that among its Leaves, which are much longer and narrower than the Iris, or Flower-de-Luce, there arises one or two like the rest, only somewhat narrower, thicker, and rounder towards the Top, near to which come forth single Juli, rarely two, in Shape like the Catkin of the Hazel, or like long Pepper, but ending more taper, and standing up obliquely from the Leaf.

The Root is thick, full of Joints, and spreads itself on the upper Part of the Earth, transversely, and not sinking deep in it, being full of large white Fibres, increasing much, and soon taking a great deal of Ground. It has a strong Smell, not so plea-

sant while green, but growing more grateful and aromatic as it dries. It grows in several Rivulets and watery Places in England, as about Norwich, and in Cheshire, and Surrey, according to Mr. Ray; but what is used in the Shops, is mostly imported from abroad. It produces its Catkins in July and August.

The Roots, which only are used, are hot and dry, opening and attenuating, and good for the Obstructions of the Liver and Spleen, provoke Urine, and the Menfes, help the Colic, resist Putrefaction, are useful against pestilential Contagions, and corrupt noxious Air, are an Ingredient in the Theriaca and Mithridate, and are outwardly used in sweet Bags and Perfumes. *Miller.*

It is a Stomachic, warms and dries, consists of fine Particles, attenuates and opens. Its principal Use is in Obstructions of the Menfes, Spleen, and Liver, in the Colic, &c. *Schroder. Dale.*

It is a Cardiac and Stomachic. The Root is good in acid Cruities of the Stomach, and Gripings of the Belly thence proceeding; in Obstructions of the Menfes owing to the Stomach; in the Dropsy and Scurvy as a Cardiac; in the Asthma it provokes Spitting. The *Acorus* is seldom exhibited in Substance, but mostly prepared; the Root is an Ingredient in many Compositions. *Boerhaave.*

Chuse your *Acorus* new, well grown, cleaned from the Fibres, hard to break, of an acid Taste, accompanied with an agreeable Bitterness, of a sweet Smell, and very aromatic; it is for this Reason it is more known by the Name of *Calamus aromaticus*, though altogether improper, than that of the *Acorus*. This Root, which is commonly of the Thickness of a little Finger, and about half a Foot long, is brought to us from several Parts of Poland and of Tartary, and likewise from the Isle of Java, where it is called Diringo. *Pomet.*

This is different from the true *Calamus aromaticus*. *Lemery.*

The Description of this Plant, given by Miller, answers pretty exactly that of Dioscorides, who says, the Root of the *Acorus* has a warming Faculty, that the Decoction of it is diuretic, and good in Pains of the Pleura, Thorax, and Liver, Colics, Ruptures of the Vessels, and Convulsions. It consumes the Spleen, cures the Strangury, and is effectual in the Bites of venomous Animals. It is an excellent Ingredient in warm Baths for uterine Disorders. The Juice of the Root clears a dim Sight. It is a good Ingredient in Antidotes. *Dioscorides, L. 1. C. 2.*

Acorus adulterinus, *Pseudo-acorus*, *Gladiolus luteus*, Offic. *Acorus adulterinus*, C. B. Pin. 34. *Acorus palustris*, *sive Pseudoiris*, & *Iris lutea palustris*, Park. Theat. 1219. *Acorus nostras palustris*, Merc. Bot. 1. 16. Phyt. Brit. 2. *Iris lutea palustris*, Ger. 46. Emac. 50. Raii Hist. 2. 1186. Synop. 3. 374. Rupp. Flor. Jen. 26. Tourn. Inst. 360. Elem. Bot. 192. *Iris palustris lutea*, *sive Acorus adulterinus*, J. B. 2. 732. Chab. 244. Dill. Cat. Giff. 79. Buxb. 168. BASTARD ACORUS. *Dale.*

This *Iris*, that grows so common in Ditches and watery Places, bears Leaves like the common Flower-de-Luce, only somewhat longer and narrower; the Stalk arises higher, on the Top of which grow three or four Flowers, one above another, flowering gradually, in Shape like an ordinary Flower-de-Luce, only that it wants the upright Leaves, instead of which it has only two small Pieces of Leaves in their Places. The Flowers are succeeded by large triangular Seed-Vessels, containing three Rows of flat Seed. The Root is long and slender, not running deep in the Earth, but a-slant. It flowers in Summer.

The Roots of the *Pseudo-acorus* are restraining, drying, and binding, and useful in Fluxes of all Sorts; some commend it as a Strengtheners of the Brain and Nerves. It is but seldom used. *Miller. Dale.*

Acorus Asiaticus, Offic. *Acorus verus*, *sive Calamus aromaticus Asiaticus*, *radice tenuiore*, Herm. Cat. Hort. Lugd. Bat. 9. C. Commel. Flor. Mal. 3. Boerh. Ind. A. 2. 169. *Acorus Asiaticus radice tenuiore Hermannii*, Raii Hist. 2. 1910. Hist. Oxon. 3. 246. *Acorus Brasiliensis aromaticus minor*, *Capitatinga*, *aliis Jacareatinga Pisonis, ejusdem*. *Acorus verus Asiaticus*, *radice tenuiore*, *vel Calamus aromaticus Garziae*, Pluk. Almag. *Calamus aromaticus*, Garz. ab Hort. 200. *Calamus aromaticus Orientalis*, *folio & radice tenuiore*, Aët. Philosoph. Lond. N^o. 274. P. 943. *Capitatinga*, *aliis Jacareatinga Acori species*, Pil. 241. Va embu, Hort. Mal. 11. 99. Tab. Vazabu, Vazum 60. Herm. Mus. Zelan. 56. ASIATIC SWEET FLAG.

It grows in both Indies, the Root is in Use, and its Virtues are the same with those of the *Acorus verus*, or common Sweet Flag. *Dale.*

Salmasius makes the following Observations on the *Acorum*.

It is now certain, that the Root of the *Acorum*, which is sold at the Shops, and prescribed by most Physicians, is vastly different from the *Acorum* of the Antients, and even endued with contrary Qualities. Some think the *Acorum* of the Moderns to have been the old Butomus; but I cannot agree with them. The Antients give the Butomus a Leaf like that of a Lilly. Democritus, in *Excerptis Geoponicis*, Lib. 11. Cap. 11. *ὁ δὲ βοτόμος*, thus writes of it: "The Butomus grows in Marshes; it has Leaves like those of Lillies, which Cattle greedily eat, and sends forth many Shoots from one Root." The common *Acorum* has the Leaves of Iris rather than Lilly. They

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They who would have the greater Galangal to be the true *Acorum*, are still wider from the Truth. The greater Galangal grows only in India, and was quite unknown to the Antients, who had their *Acorum* from Pontus, Galatia, Colchis, and Crete. But the Description of the greater Galangal does in no Point agree with the Figure of the *Acorum*. I do not know how far we ought to believe the modern Greeks, who interpret "Ακορον by Κάλαμος ἀρωματικός. Hence, however, many have suspected what is commonly used for the *Calamus aromaticus* to be the true *Acorum*. By the same Argument might any one pretend that *Schoenus odoratus* was the same as Sium, because τὸ σίον is in like Manner called σχοῖνος ἀρωματικός. The Arabians call the *Acorum*, Ugi, or Vegi; but they do not seem to know the Plant. Serapio describes it in the Words of Dioscorides, nor does he cite any Arabian Authors who had described it. Avicenna says that the *Acorum* was the Root of a Plant like the Papyrus, that is, Alburdi; so the Arabians call the Niloticus Juncus, which was the Papyrus of the Antients. But the *Acorum* of the Antients has no Resemblance to the Papyrus. They have indeed both pointed Leaves, but of a different Figure; and they disagree in many other Respects. And yet in the Granada Lexicon *Burdo Acorus* is explained *Gladiolus*. They seem to have called it so, because the *Acorum* is an aquatic Plant; for the Greeks did not only call the Egyptian Plant, but also φάεν, the common Rush, by the Name of πᾶπυρος. And the Author of an antient Arabic Lexicon interprets the Word, which signifies a Rush, Biblon.

Avicenna writes that this *Acorum* of his grows in Waters and Streams. In Neophytus, and the spurious Works of Dioscorides, I find it called Πεπυράκιον; which, perhaps, was written for Πεπυράκιον, as the Latins called this *Acorum*, from its Likeness to the Papyrus, Papyraceum. From such an Author, and such a Name, does Avicenna seem to derive his Information, when he wrote that the *Acorum* was a Plant like Papyrus. In a very antient Copy of Apuleius, *de Herbis*, it is read Piperapium, in one Word, which, it is pretended, should be written separately, Piper Apium; because soon after he relates, that the Herba Veneria (so he calls the *Acorum*) was hung in the Bee-hives, to prevent the Bees from swarming and flying away. But I do not take this to be a good Reason for the Name; and am thoroughly of Opinion that Piperapium was written instead of Piperacium, as it is in Neophytus. It is very common, in antient Books, to change P for C. So the barbarous People at this Day pronounce Diptamnus for Dictamnus; and in Tyro's Notes, and a very antient Copy of Seneca, we find Cercopithecus for Cercopithecus. Nor do I question but *Acorum* was called *Piperacium*, instead of *Papyraceum*, from its Likeness to the Papyrus, as Avicenna would have it, who also affirms the *Acorum* to have a rank and noisome Smell. On the Contrary, all the Antients write that its Smell was no Way disagreeable. Thus Dioscorides says of the Root of *Acorum*: "That it had a bitting Taste, and no ungrateful Smell." The same say Pliny, Galen, and all the rest. That Author then seems to have taken another Plant for the *Acorum*, perhaps, the common *Spathula foetida*, for that, as well as the *Acorum*, has the Leaves of the Iris, only lesser and narrower. The Interpreter also of Serapio renders *Acorum* by *Spathella*, which is the same as *Spathula*, and has the Signification of *Gladiolus*, by which Name *Acorum* is translated in the Granada Lexicon. And the *Gladiolus Aquæ* is commonly called the *Acorum*, but the *Spathula foetida* does not grow in Waters, but under Hedges and Bushes. The Pseudo-Apuleius says, that the *Acorum* grows in Gardens, and cultivated Places, and Meadows; it differs therefore from the true *Acorum*, which delights in watery and marshy Places. Indeed, the Antients themselves did not call barely one Thing by the Name of *Acorum*. Pliny relates, that the Root of *Oxy-myrsine* was, by some, called *Acorum*, Lib. 25. Cap. 13. *Nec non inveniuntur qui Oxymyrsines Radicem Acoron vocant, ideoque quidem hanc Acorion vocare malunt*: So the Place must be read. For the Sake of Distinction, and to avoid confounding them, some called one of them *Acorion*, and the other *Acoron*. In the Index it is written, *Acoron sive Acrion*, read *Acoron sive Acorion*. It is certain then, that the *Acorum* of Apuleius is not the true one, which grows in watery Places, as Pliny also attests, though he differs from Dioscorides as to the Colour of the Root. Dioscorides makes it whitish, Pliny black: "The *Acoron*, says he, has the Leaves of the Iris, but narrower, and with a longer Pedicle, a black Root, and not so full of Veins." The true *Acorum* is shewn and described by Clusius, *Histor. Lib. 2.* which he makes to have white Roots. The Bottom of its Stalk is, as it were, triangular, like the Papyrus; instead of a Flower, it bears a Panicle, or Catkin, at its first Appearance, like the young Catkin of the Hulse. It delights in watery Places. Consult this Author by all Means. Apuleius says that his *Acorum* is hard to be found, nor can be known, before it is in Flower. Dioscorides tells us that the best was found in Colchis and Galatia, which was called *Splenium*, from the Effect it had of diminishing the Spleen. Neophytus has the same. It was called *Splenium*, from curing Disorders of the Spleen, as *Thapsia* was called θάπσιον, from curing Lividness in the Face arising from Blows. Pliny agrees with Dioscorides, as to the Countries where the best may be had.

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ACOS. *Ακο. Medela. A Remedy.

ACOSMIA, *Ακοσμία. From a Negative, and Κόσμος, Order. Irregularity, principally in Fevers, with Respect to the Crisis and critical Days.

Castellus, from Pollux, says, they, who were bald, used to be called *Acosmoi* (*Ακοσμοί), because they had lost the great Ornament, the Hair; for Κόσμος signifies Ornament, as well as Order.

ACOUSIA. *Ακουσα, from a Negative, and ἐκώ, voluntary. Galen explains ἀκουσαι by πεπληρωμένοι, full, and is followed by some of the Commentators on Hippocrates, as Cordæus and Foësius; but there does not seem to be the least Foundation for this Interpretation. The only Passage, where there is any Possibility that it should signify full, is in the first Book *de Morbis Mulierum*, where Hippocrates, in delivering the Causes of Miscarriages, says, Women miscarry of Children which are very small, because such Children are usually very weak; and they also miscarry of Children that are very large: Hence it is no Wonder that Women miscarry, ἀκουσαι, involuntarily, or without manifest Cause. That this is the true Meaning of this Passage, appears by others in the same Author, where he says, that one frequent Reason why a Woman miscarries, without evident Cause, is, because the Womb is too rigid to be extended in Proportion to the Bulk of the Child. And it is for the same Reason, that Women who go through their Time very well, when big with only one Child, yet miscarry frequently, when they are with Child of two. See the Article ABORTUS.

ACOUSIA. Involuntary. This is often applied by Hippocrates to Tears, which, in Distempers, flow involuntarily; from whence Prefaces are to be drawn. See LACHRYMÆ.

ACOUSTICA, from *Ακούειν, to hear. Remedies against Deafness are thus called.

ACRAI. An Arabic Word. It seems to mean that Disorder which in Men is called a *Satyriasis*, and in Women a *Furor uterinus*. Castellus from Avicenna.

ACRAIPALA, *Ακραίπαλα. From a Negative, and κραίπαλον, Crapula. A Surfeit, Drunkenness. Medicines are thus called, which either prevent or cure Surfeits or Drunkenness.

ACRALEA. *Ακραλία. This is explained by Galen *Ακραία. The Extremities, I suppose, he means.

ACRAS. *Ακράς. Thus the Pyrum Sylvestre is called by Ray, by Mistake, for *Αχράς, Achras, the wild Pear. It is restraining and drying. When cut into Slices and dried, Pliny recommends a Decoction of it for a Looseness. The Decoction of the Leaves and Fruit is also of Use in the same Case. Raii Hist. Plant.

ACRASIA. *Ακρασία or *Ακρησία, from a Negative, and κερώννυμι, to mix. Intemperance. The Temperance of the Antients was very great, with Respect to Drinking. They used to mix four or five Parts of Water with one of Wine. This we may gather from a Passage in Cælius Aurelianus, who informs us, that, in a Catarrh, Asclepiades directed his Patients to augment the Quantity of their Wine to double or treble what they used to drink in Health, insomuch that he made them drink half Wine and half Water. Hence the Drinking Wine unmixed was called *Ακρασία, by a Derivation which is retained in Latin and English, for *Tempero* is the same as κερώννυμι, to mix. Hence the Word was applied to Excess of any Sort, as in Eating, Drinking, Sleeping, and Venery. And it is used in this Sense frequently by Hippocrates, and the Greek medicinal Writers from him.

But (*Ακρασία) ACRASIA is also used in a very different Sense by Hippocrates, and in many Places signifies the same as *Acratia* (*Ακρατεία), Weakness, Impotence, or Inability for Motion. *Ακρασία, in this Sense, should have the same Derivation as *Ακρατεία.

ACRATIA. *Ακρατεία, from a Negative, and κράτος, Strength. Imbecillity, or Inability for Motion. This, and the Adjective *Ακρατής, is very common in Hippocrates, Galen, and the other medicinal Writers. It is either applied to the whole Body, deprived of Motion, or any particular Part, as the Tongue, when by Distemper rendered incapable of articulating the Voice. They are also applied to the Stomach and Intestines, which, through Weakness, cannot retain the Aliment received, but too soon discharge it, either by Vomit, or by Way of Diarrhœa.

*Ακρατής is used in a Sense somewhat different by Hippocrates, *Epidem. L. 6. Sect. 8. Aphorism. 45.* in the Opinion of his Interpreters. The Passage is thus, ἐν οἷσιν ἀκρατής φοβέρεται. This, they say, means that a Physician should distinguish when it is proper to terrify a Patient that is unruly, and cannot contain himself. If this Interpretation is right, *Ακρατής in this Place signifies unruly, or incapable of restraining themselves to a proper Conduct.

ACRATISMA. *Ακρατίσμα. A Breakfast amongst the old Greeks, consisting of a Morsel of Bread soaked in pure unmixed Wine. Constantini, Castellus.

The Derivation of this Word is the same as that of *Acrasia*, because the Wine, used on this Occasion, was not mixed with Water.

ACRA-

ACRATOMELI. 'Ακρατόμελι. The same as Mulsūm. Wine mixed with Honey. See MULSUM.

ACRATOS. 'Ακρατός or 'Ακρητός, from α Negative, and κρύννυμι. to mix. Pure, simple, unmixed. This is very often used by Hippocrates, and applied to the Excretions of different Sorts, and is always of very bad Presage. Thus, in his *Prænotiones*, he observes, that, in all painful Disorders of the Pleura and Lungs, the Spit should appear mixed with yellow, and that 'tis a dangerous Symptom if it is all yellow without any Mixture (ξάνθον ἀκρητον). And immediately after, he tells us, that, if the Spit is so unmixed as to appear black, it is a very bad Circumstance.

This is again repeated, *Coac. Prænot.* 390. in almost the same Words.

With Respect to what is discharged by Vomit, he observes, (*Prænot.*) that a Mixture of Phlegm and Bile is best, but that what is more unmixed (ἀκρητέστεραι) is much worse. And (*Coac. Prænot.* 560.) he says, what is discharged by Vomit in small Quantities, and by a little at a Time, if bilious, and unmixed, ('Ακρηται) is of bad Presage, in too copious Purging, and Pains of the Loins. And again, (*Prædiēt. L. 1. 62.*) he says, unmixed ('Ακρητα) Vomits, attended with Anxiety, and Restlessness ('Ασωδία), are very bad. And (*Epidem. L. 2. Sect. 2.*) he observes, that in Vomits that are taken on Account of a Fever, if what is discharged, at the End of the Operation, begins to appear unmixed (ἀκρητέστερον) 'tis a Sign of Putrefaction.

The same Author also condemns sincere and unmixed Stools. As in *Aphor. 6. L. 7.* where he says that, in chronic Disorders, Loss of Appetite, sincere or unmixed Stools are bad. The Reading here, in Foësius, differs from that of Heurnius. In the first, the Stools are called 'Ακρηται; in the last γαλακτέες; but the Sense seems pretty much the same either Way, what is meant being probably bilious Stools without any Mixture. Perhaps, it would be right to insert both Words. In the same Section, *Aph. 23.* these Sorts of Stools are again taken Notice of, as of bad Presage.

Galen says, Hippocrates means, by these Stools, such as are not mixed with any watery Moisture, but are all of one Colour, either yellow, black, æruginous, or porraceous.

Hippocrates also applies 'Ακρητος to Blood discharged from the Nose, and this is always mentioned as a bad Symptom. Galen explains it of Blood that is black and thick. In the Case of Philiscus, which is the first of the first Book of *Epidemics*, it is said that, on the fifth Day about Noon, this Sort of Blood ('Ακρητον) distilled from the Nose. The next Day about Noon he died. Physicians, who have observed some few Drops of thick black Blood discharged from the Nose of Patients under much the same Circumstances as Philiscus, will know what Hippocrates means by 'Ακρητον, better than it can be explained by Words, and will be sensible that Galen's Interpretation is right. Hæmorrhages of the Nose in Fevers are critical and salutary, when the Blood is in such a State of Fluidity, as to admit of its being discharged in sufficient Quantities. But when the Blood is thick and black, as in the Case of Philiscus, for that Reason a Crisis by the Blood-vessels is prevented, and the Patient, after such an Effort, generally perishes.

'Ακρητον also signifies Wine unmixed, as *Merum* is in like Manner used in Latin.

But 'Ακρητον is also used by Hippocrates, to signify vehement, excessive, intemperate, and is applied by him to the Symptoms of Diseases, to the Catamenia, to Paleness, to excessive strong Aliment. And by other Authors to a Diarrhœa, to Anger, to Heat, or any Thing in Excess.

ACRE. 'Ακρη. It signifies the End or Extremity of the Nose.

ACREA. 'Ακρεα. The Extremities, among which are reckoned the Arms, Legs, Nose, and Ears. From these some Presages are drawn in Distempers. Thus Hippocrates, *Prædiēt. L. 1. 43.* observes, that sudden Changes of the Extremities, with Respect to Heat and Cold, are bad Symptoms. This is repeated, *Coac. Prænot.* 50. and in the very same Words. Coldness of the Extremities is also mentioned in many Places of the *Epidemics*, as attending Fevers of an ill Sort, which is represented as a very bad Symptom, if they don't grow warm again without Difficulty.

'Ακρεα is also applied to the Extremities of Animals used by Way of Food. Thus, *Epidem. L. 7.* a Part of Aleman's Diet is said to be κόλωναί ὅς ἀκρέων ἔσθων, which Celsus calls *Trunculi suum*, *L. 2. C. 20.* and places amongst Aliments of good Nourishment. They seem to be what we call Petty-Toes.

ACRESPERON, 'Ακρεσπερον, from 'Ακρεσ, extreme, and 'Εσπερος, the Evening. The Beginning of the Evening, or Night, in the Sense of Hippocrates. *Foësius. Gorraeus. Constantine. Galen.*

ACRETOPOSIA, 'Ακρετοποσία, from 'Ακρητον, Wine unmixed with Water, and πόσις, Drink. It signifies the Drinking of Wine without any Mixture of Water. *Castellus.*

ACRIBES. 'Ακριβής. The Meaning of this Word is explained by Galen in his Treatise *de Simpl. Med. L. 4. C. 22.*

When, says he, I say, a Thing is exactly ('Ακριβώς) thus, or thus, I mean, that it is purely so, and, as much as is possible, void of all other Qualities.

A Tertian, which ceases within twelve Hours, is called, an exact ('Ακριβής) Tertian. But, if the Fit exceeds that Time, it is not an exact Tertian (ἐκ ἀκριβούς). *Oribasius.*

ACRIMONIA. Acrimony. The different Species of Acrimony are taken Notice of under the respective Articles. Any Thing is said to be acrimonious, that is pungent, stimulating, and corroding, as Bodies which are alkaline, acid, and muriatic.

ACRIFOLIUM. Amongst the old Botanists, it is applied to any Plant with a prickly Leaf.

ACRIS. 'Ακρeis. This properly signifies the Top of a Mountain, and hence is applied to the sharp Extremities of fractured Bones, as in Hippocrates, *de Articulis*. But Foësius thinks 'Οκρίς should be read in this Place instead of 'Ακρeis. 'Οκρeis signifies much the same.

ACRIS, 'Ακρίς, also signifies a Locust, an Insect, which the Parthians and Indians eat, and which was St. John's Food in the Wilderness, as is supposed.

ACRISIA. 'Ακρίσια, from α Negative, and κρίνω, to judge, or separate. It signifies that State of Crudity and Inconcoction of the Juices, which prevents a Separation of the morbid Matter, and the consequent Expulsion of it out of the Body, and is directly the Reverse to a Crisis.

Galen explains it, by either no Crisis at all, or one that is made with much Difficulty, or which is ineffectual for the Relief of the Patient, who, after it, does not grow better, but rather worse than he was before. See CRISIS.

ACRITON. 'Ακριτον. This is explained by Galen by 'Αδιείρητον, not separable, not distinct, confused, or of which we can form no Idea.

Gorraeus says, it signifies immense or infinite.

ACRIVIOLA, [of *Acer*, sharp, and *Viola*, Violet, i. e. Sharp Violet] commonly called *Nasturtium Indicum*, or Indian Cress.

The CHARACTERS are,

The Leaves are round, umbilicated, and placed alternately; the Stalks are trailing; the Cup of the Flower is quinqued; the Flowers consist of five Leaves, which are in Form of a Violet; the Seeds are roundish and rough, three of them succeeding each Flower.

There are five Varieties of this Plant in the English Gardens, viz.

1. *Acriviola*, Frid. Cæs. T. 935. The lesser Indian Cress.
2. *Acriviola, flore sulphureo*, Boerh. The lesser yellow Indian Cress.
3. *Acriviola, maxima odorata*, Boerh. The great Indian Cress.
4. *Acriviola, maxima odorata, flore sulphureo*, Boerh. The great yellow Indian Cress.
5. *Acriviola, maxima odorata, flore pleno*. The great double Nasturtium, or Indian Cress. *Miller.*

This is esteemed a good Antiscorbutic. The young Shoots and Fruit are used in Pickles. It abounds with a volatile, oily, acrid Salt.

ACROASIS, 'Ακρεασίς, or 'Ακρόησις. It signifies an Audience, Harangue, Lecture, or what in foreign Universities they call a College.

Hippocrates, in his *Oath*, distinguishes Παρηγγελία from 'Ακρεασίς; by the first probably meaning a Precept, or Aphorism; by the second, Lectures upon it, in order to explain it, or Doctrine delivered in Words. This Meaning is confirmed by the Use the same Author makes of 'Ακρεασίς in his Treatise, intitled Παρηγγελίαι, where he says, *If you have a Mind to make an Harangue ('Ακρεασιν) for the Sake of the Populace, or before a Populace, do it without Ostentation.*

ACROBYSTIA, 'Ακροβυστία, the Extremity of the Prepuce, from 'Ακρος, extreme, and βύω, to cover. See ACROPOSTHIA.

ACROCHEIRIA, 'Ακροχειρία. ACROCHEIRETIS, 'Ακροχειρησις. ACROCHEIRISMOS, 'Ακροχειρισμός. From 'Ακρος, extreme, and χείρ, a Hand. An Exercise amongst the Antients. It seems to be a Species of Wrestling, where they only hold by the Hands, as the Derivation imports. Dacier says, the Combatants only squeezed each other by the Hands, till one yielded to the other. It is mentioned in the second and third Book of Hippocrates, *de Vietus Ratione*.

ACROCHEIRIS, 'Ακροχειρίς. This has the same Derivation as the preceding.

Gorraeus says, it signifies the Arm from the Elbow to the Ends of the Fingers, χείρ signifying the Arm from the Scapula to the Fingers Ends.

ACROCHLIARON, 'Ακροχλιαρόν. From 'Ακρος, extreme, and χλιαρόν, warm. It signifies very warm, lukewarm, or as warm as a Liquid can conveniently be drank.

ACROCHOLIA, 'Ακροχολία. From 'Ακρος, extreme, and χολή, Anger. Violent Anger.

ACROCHORDON, 'Ακροχορδόν. From 'Ακρος, extreme, and χορδή, a String.

Galen

Galen says, the Antients impose Names upon Things from very odd Analogies, particularly in the Instances of Epinyctis, Acrochordon, and Nyctalops. The First they called so, because it breaks out in the Night; the Second, because of its Situation on the Surface of the Skin; the Third, because they who are affected with it cannot see in the Night. *De Methodo Medendi.*

An *Acrochordon* is a round Excrecence on the Skin, with a slender Base. *Galen, Def. Medic.*

The Greeks call that Excrecence an *Acrochordon*, where something hard concretes under the Skin, which is something rough, of the same Colour as the Skin, slender at the Base, and broader above. It is small in Size, seldom exceeding that of a Bean. One seldom appears alone, but generally a great many at a Time, principally in Children. Sometimes they disappear suddenly, sometimes they excite a slight Inflammation, and sometimes suppurate.

If an *Acrochordon* is cut out, it leaves no Root behind, and therefore is not subject to grow again. *Celsus, L. 5. C. 28.*

By this Account we find the *Acrochordon* is that Species of Wart, which Wiseman calls Pensile. It is generally extirpated, when it becomes troublesome, either by Ligature or Excision. See VERRUCA.

ACROCHORISMUS, *Ἀκροχορισμός*. From *ἄκρος*, extreme, and *Κορεύω*, to dance. An Exercise which consisted in Dancing, attended with violent Agitations of the Arms and Legs.

Schulzius says, in the *Acrochorismus*, they joined Hands to Hands, or Forehead to Forehead, and endeavoured to push each other out of the Place they stood in.

ACROCOLIA, *Ἀκροκόλια*. From *ἄκρος*, extreme, and *Κῶλον*, a Limb. These are the Extremities of Animals, which are used in Food, as the Feet of Calves, Swine, Sheep, Oxen, or Lambs, and of the Broths of which, Jellies are frequently made. Castellus from Budæus adds, that the internal Parts of Animals are also called by this Name, in English Giblets.

They are recommended by Hippocrates (*de Mulierum Morbis, L. 2.*) as a proper Food, when there is a Tendency towards a Dropsy. And they are, in other Places, recommended as Food of easy Digestion, and proper for weak Stomachs.

ACRODRYA, *Ἀκρόδρυα*. From *ἄκρος*, extreme, and *Δρῦς*, properly an Oak, but taken for any Sort of Wood. All Sorts of autumnal Fruits, produced by Trees, whether of the Nut, Apple, or Plum Kind. Strictly it is said to signify only those Sorts of Fruits, that are covered with a Shell, or Husk. But the Use made of it by Hippocrates, and the other medicinal Writers, gives no Grounds for this Distinction.

ACROLENION, *Ἀκρολήνιον*. Castellus says, this is the same as Olecranon, the great Process of the Ulna. I have met with the Word in no other Author.

ACROMION, *Ἀκρόμιον*. From *ἄκρος*, extreme, and *ὤμος*, the Shoulder. That Part of the Spine of the Scapula that receives the Extremity of the Clavicula. See SCAPULA.

ACROMPHALION, *Ἀκρομφάλιον*. From *ἄκρος*, extreme, and *ὀμφαλος*, the Navel. The Tip of the Navel. *Gorræus.*

ACRON, *ἄκρον*. It signifies, in a medicinal Sense, that which is most excellent in its Kind. Thus *ἄκρον ἱρινον*, mentioned by Hippocrates *de Morb. Mulierum*, signifies the most excellent Sort of Unguentum Irinum. *Foëf.*

ACRON, amongst the ancient Botanists, was used to signify the Capitulum, Top, or Flower of Plants of the Thistle Kind. *Salmasius Hyl. latric.*

ACRON. A Physician of Agrigentum, a Contemporary of Empedocles, who lived some little Time before Hippocrates. Pliny represents him as living in Friendship with Empedocles; but, the Learned believe, from some Passages in Diogenes Laertius, and Suidas, that Pliny was deceived into this Opinion, by an Epigram, made by Empedocles, as an Epitaph for *Acron*, which Pliny understood as a Compliment, but which in Reality was intended as a Ridicule. And, indeed, it is not very probable, that they should agree, their Sentiments, with Respect to Medicine, being directly opposite. Empedocles probably accounted for the Appearances in Diseases, and the Effects of Medicines, from the Principles of the Philosophy he professed; whereas *Acron*, though remarkably successful in his Practice, thought all Manner of Reasoning, in Matters relating to Medicine, superfluous, and therefore he is claimed by the Physicians of the Empiric Sect as their Patron.

What we learn farther of *Acron* is, that he was not without a sufficient Share of Vanity, affecting to be thought and called the Chief of the Physicians, by a ridiculous Allusion to his Name, which bears the Signification of Supreme.

Plutarch tells us, that *Acron* was at Athens in the Time of the great Plague, which happened in the Beginning of the Peloponnesian War, and that he advised the Athenians to light great Fires in the Streets, near the Sick, probably with a View of purifying the Air. This is by others related of Hippocrates. It was very common for the Antients to attribute the remarkable Cures, and the extraordinary Methods of Practice of one Physician, to many others of Eminence; and the Moderns have carried this Weakness to such a Degree of Extravagance and Folly, that even Reparties, made by Physicians

who have been dead some Centuries, are related of Physicians that arrive at any Degree of Eminence in every Age and Country.

Suidas says, *Acron* exercised the Profession of Sophist at Athens, but Le Clerc thinks it a Mistake.

Le Clerc remarks, that the Vanity of *Acron* is a full Confutation of Celsus, who represents the Art of Physic as the Invention of the Philosophers. Because, if it had been so, *Acron*, who lived after Pythagoras, and at the same Time with Empedocles, and depended on Experience only, could not have had the Insolence to arrogate to himself the supreme Place amongst the Physicians, in Prejudice of the Inventors of the Art.

ACROPATHOS, *Ἀκρόπαθος*. From *ἄκρος*, extreme, and *πάθος*, a Disease. It signifies literally a Disease at the Top or superior Part. Hippocrates, in his Treatise, *de Suppuratione*, applies it to the internal Orifice of the Uterus; and (*Prædict. L. 2.*) to Cancers, which appear on the Surface of the Body. These he calls *Ἀκρόπαθοι*, by Way of Distinction from those, which are *κρύπτοι*, hid or concealed in the internal Parts; unless by *Ἀκρόπαθοι* he means those that are ulcerated, and by *κρύπτοι*, those which are not yet broke.

ACROPIS, *Ἀκροπίς*. From *ἄκρος*, extreme, and *ὄψ*, the Voice. It is used by Hippocrates several Times in the seventh Book of *Epidemics*, as an Epithet for the Tongue, which, either by Reason of Dryness, or some Imperfection in the Muscles, cannot articulate the Voice. And is also applied to the Patient labouring under such a Disorder.

ACROPLOA, *Ἀκρόπλοα*. From *ἄκρος*, extreme, and *πλῖω*, to sail. Superficial. Hippocrates (*Lib. 1. de Morbis*) having given an Account of the Disorders to which the Veins in the Lungs are subject, adds, that the superficial (*Ἀκρόπλοα*) Veins on the Inside of the Pleura, or Side, are affected in the same Manner.

ACROPOSTHIA, *Ἀκροποσθία*, or *Ἀκροποσθία*. From *ἄκρος*, extreme, and *πόσθη*, the Prepuce, or the Skin which covers the Glans of the Penis. The Extremity of the Prepuce. That Part which is cut off in Circumcision.

Hippocrates *Aphor. 19. L. 6.* and *Coac. Prænot. 504.* represents the *Acroposthia* as a Part incapable of Re-union, if cut or divided. And the same Author (*de Morbis, L. 4.*) tells us, that this Part will discover a Stone in the Bladder, though other Signs of it, which he mentions before, do not appear. But he does not inform us in what Manner. However, Celsus and Aretæus explain this, by telling us, that a Patient, who has a Stone in the Bladder, endeavours frequently to relieve his Pain, by stretching or extending the Penis, Aretæus says, as if they would pull out the Bladder together with the Stone; for this Purpose they lay hold of the *Acroposthia*, in which and the Glans there is an uneasy Sensation. They who have been racked by a Stone in the Bladder are very well acquainted with this Symptom.

ACROPSILON, *Ἀκρόψιλον*. From *ἄκρος*, extreme, and *ψίλος*, bare. It signifies bare at the Top. Hippocrates (*Epidem. L. 4.*) applies it to the Pudendum of a Boy, who was affected with a Tumour of both Hypochondria, and Exulceration of the Navel.

ACROS. *ἄκρος*. Extreme, uppermost. It is also used to signify the very best of the Kind. See ACRON.

ACROSAPES, *Ἀκροσαπής*. From *ἄκρος*, extreme, and *σῆπω*, to putrefy. Galen explains this, soon changed in the Superficies (*Ἐπιπόλης*) but Foësius says, some Copies substitute *βραχὺ* for *Ἐπιπόλης*, which is most likely to be right, for then it will signify, soon changed, or in a short Time. The Word is used by Hippocrates in his Treatise, *de Alimento*. The Passage is, *Σίτον νέον αἰροσαπής*. Foësius, if I understand his Meaning, interprets this Passage thus: *Aliment gently boiled (leviter coctum) agrees with young People*. But the Explanation of *Ἀκροσαπής*, given by Castellus, from Valesius, seems more to the Purpose. According to this, *Ἀκροσαπής* signifies, *easy of Digestion*; and then the Passage will run thus: *Aliments are easily digested by young Men*. Or, *Aliments are easy of Digestion in the Stomachs of young Men*. And this we find true in Fact.

ACROSPELOS, *Ἀκρόσπελος*. A Name of the Bromus Dioscoridis, or Wild-Oat-Grass. *Gorræus.*

ACROTHERIA, *Ἀκρωτήρια*. The Extremities, or extreme Parts of the Body, as the Hands and Feet. Castellus adds the Head, and Galen the Head, Nose, and Ears.

Hippocrates, *Aphor. 1. Sect. 7.* marks a Refrigeration of the Extremities in acute Diseases, as a bad Symptom. And, in *Aph. 26.* of the same Section, he pronounces a Refrigeration of the Extremities, in painful Disorders of the Belly, of bad Pre-sage. In the Geneva Edition of Foësius of 1657, *Ἀκρωτήρια* is printed, by Mistake, for *Ἀκρωτηρίων*. It is taken Notice of in the Treatise, *de Ratione Viæ in Acutis*, amongst other bad Symptoms attending acute Disorders. It is a little after mentioned as an Effect of Oxymer, given improperly in acute Cases. And again, as a Symptom attending a Causus, or Burning Fever. In the same Treatise it is also mentioned as a Symptom of a Sort of Fit, there described, when a Patient in Health is suddenly seized with an Interception, or Loss of Voice, without any evident Cause.

It is universally the Doctrine of Hippocrates, and, from him, of all other medicinal Writers, that, in acute Disorders, it is a good Sign to have all Parts of the Body equally hot. And that it is a very bad Symptom, to have the Arms and Legs cold, whilst the Belly and Sides are hot; and this is confirmed by common Observation.

Galen says, a Refrigeration of the Extremities is often caused by Affections of the Cardia, or left Orifice of the Stomach; and that it is a most pernicious Symptom, when it happens in Inflammations of the Viscera. Physicians meet with frequent Confirmations of all this Doctrine, in Practice.

ACROTHERIASMUS. Ἀκροτηριασμός. An Amputation of any of the Extremities. See **AMPUTATIO**.

ACROTHOREX, Ἀκροθόρηξ. From ἄκρος, extreme, and θόρηξ, to get drunk. By the Etymology, it should seem to signify one that is excessively drunk; and thus, Constantine says, some interpret it. But it is more generally taken to signify one that has drank till he has just attained the first Stage of Drunkenness, or, as we express it in English, is fuddled.

ACROTHYMION, Ἀκροθύμιον. From ἄκρος, extreme, and θυμός, Thyme.

A Species of Wart described by Celsus. It is broad at the Basis, but narrow at the Top, hard, and rough. The Top of it resembles the Flower of Thyme in Colour, whence it derives the Name. The Top easily splits, and bleeds. It is usually about the Size of an Egyptian Bean, seldom bigger, sometimes very small. Sometimes a single one grows on the Palms of the Hands, or inferior Parts of the Feet, but sometimes there are more. Those are most troublesome, which grow on the obscene Parts, and most subject to bleed, Celsus, L. 5. C. 28. S. 14.

ACMO. Red Coral. Rulandus. Johnson.

ACTÆA. An Herb, mentioned by Pliny, L. 27. C. 7. Ray thinks it the *Aconitum Racemosum*, called also *Christophoriana*, *Herb Christopher*, or *Bane-berry*. This is, in the Opinion of all Botanists, a very poisonous Plant. But Pliny says, the *Actæa* may be given in the Quantity of an Acetabulum, that is, half a Quarter of a Pint, in internal Disorders of Women. Either therefore Ray, or Pliny, or the Botanists, who represent the *Aconitum Racemosum* as poisonous, must be mistaken.

ACTE. Ἄκτις. The Elder. See **SAMBUCUS**.

ACTIN. Ἄκτις, or Ἀκτίς. A Ray of the Sun, or of Lightening.

ACTINÆ. Ἀκτίνη. A Name of the Herb Bunias or Napus. Gorræus. See **NAPUS**.

ACTINOBOLISMUS. Ἀκτινοβολισμός, Ἀκτινοβολία. Irradiation. It is applied to that instantaneous Action of the animal Spirits, by which they convey the Inclinations of the Mind to the Organs of voluntary Motion. It is also called **DI-RADIATIO**.

ACTIO. ACTION. The Actions or Functions of the Body are divided, by the Writers of Institutes, into the Vital, Animal, and Natural. The Vital are such as are so necessary, that the Individual cannot subsist a few Minutes without their Exercise. Such is the Motion of the Heart and Lungs; the Secretion of Spirits in the Cerebellum, upon which the Motion of the Heart and Lungs depends; the Circulation of the Blood and Spirits in their proper Vessels.

The Natural Actions are such as are necessary for the Continuance of the Animal, but not so immediately, but that it may subsist a considerable Time without them, as the Digestion of the Aliment, and its Conversion into Blood.

Under Animal Actions are comprehended those which constitute the Senses of Touch, Taste, Smell, Vision, Hearing, Perception, Imagination, Memory, Judgment, Ratiocination, Affections of the Mind, and voluntary Motion, without any or all of which an Animal may live, but not very comfortably. Boerhaave.

The Writers of Institutes also mention other Actions, which they call Peculiar to the Sex, Private, or Public. Those Peculiar to the Sex, are of the Organs of Generation in each Sex; Private Actions are such as regard particular Parts; Public Actions are those which are performed for the Sake of the whole Body, as, the Action of the Stomach in digesting the Aliment.

These are also called Functions.

But all Parts of the Body have an Action peculiar to themselves. Thus, the Offices, performed by the Muscles, Vessels, Glands, and Viscera, are called their respective Actions, which will be explained under the Names of each particular Part.

ACTIVUS. ACTIVE. It is applied to Medicines whose Operations are quick and brisk, and such whose Effects are sudden and great.

ACTION. A Town about five Miles from London, famous for a purging mineral Water, of which Dr. Allen gives the following Account:

Much nitrous Efflorescence appears in the Clay about the Well.

The Spring opens northerly; it is reputed one of the strongest Purgers about London: It is noted to occasion a great Soreness of the Intestines and Fundament, which is reasonably referred to the Quantity of Salt they wash from the Body, but the Pene-

tration of the Salt of the Water may make it more pungent and keen. The Water was whitish, not so clear as Epsom, not saltish, but rather to me seemed sweet, with a little of the Bitterness of Epsom: It curdles with Soap, as do all.

The Salt of this Water is soft, and not crystallized, wherein it agrees with Epsom Salt, though I thought scarce so soft. The distinct Nature of this Water, or Salt of this Water, consists in that this Salt is more calcarious, or of the Nature of Salt of Lime; for the Water, boiled high, disturbed a Solution of Sublimate in fair Water, whence it precipitated a yellowish Sediment, a little more yellow than the Water, which it left white. And this Salt is likewise more nitrous, or hath more of the Nature of the Salt of the upper Soil, as appears in that it takes a pale Yellow from Gall, but dusky and disturbed, as common Salt doth effect; not so dirty, nor so apt to precipitate as Sal Calcarium. With Syrup of Violets it took a Green, with Tincture of Logwood, made with Brandy, a deep Red and Purplish, as nitrous Salts do with cold Tincture of Logwood, which hot would give a full Purple. The Salt did not precipitate fine Silver, out of Spirit of Nitre, which common Salt would. A Pint and a half of the Water yielded forty-eight Grains of Salt, in which were six Grains and a half of reddish Earth, on which acid Spirits wrought. The Earth precipitated in Boiling. Allen's History of purging Waters.

ACTUALIS. ACTUAL. This is applied to Things which are endued with any Virtue, Faculty, or Property, which acts by an immediate Power inherent in it. It is the Reverse of Potential, which signifies *endued with the Power of producing particular Effects*.

Thus a red-hot Iron, or Fire, is called the *actual* Caustery, to distinguish it from Causteries, or Caustics, that have the Power of producing the same Effect upon the animal Solids and Fluids, as *actual* Fire; these last are called *potential* Causteries. Thus also heated Liquors are said to be actually hot, *Actu calida*; but Liquors, which are capable of producing Heat in the Body, though themselves cold, are said to be potentially hot.

Hence the Words, *Actus* and *Actu*, may be understood.

The Logicians and Metaphysicians make Use of this Word in Senses somewhat different from this, but it is sufficient for the present Purpose to explain the medicinal Sense.

David Lagneus, in his *Harmonia Chymica*, printed in the *Theatrum Chymicum*, Vol. 4. quotes from Ægidius a Definition of the *Actus Activorum*, in these Words: *Actus Activorum sunt in Patientia dispositi: id est, Forma agit secundum Materiam Dispositionem*. Castellus, instead of *dispositi*, quotes it by Mistake, *Dispositio*. The Reader, that does not understand Latin, will not suffer much, because I do not translate it, for it is equally Nonsense in English and Latin.

ACTUARIUS was not the Name, but the Title of John, the Son of Zacharias, a Greek Writer of the latter Ages; a Title, which, though commonly bestowed on the Physicians of the Constantinopolitan Court, has by some Accident, of which it is not now possible to discover the Original, been appropriated to this Writer, who is now scarcely known by any other Appellation.

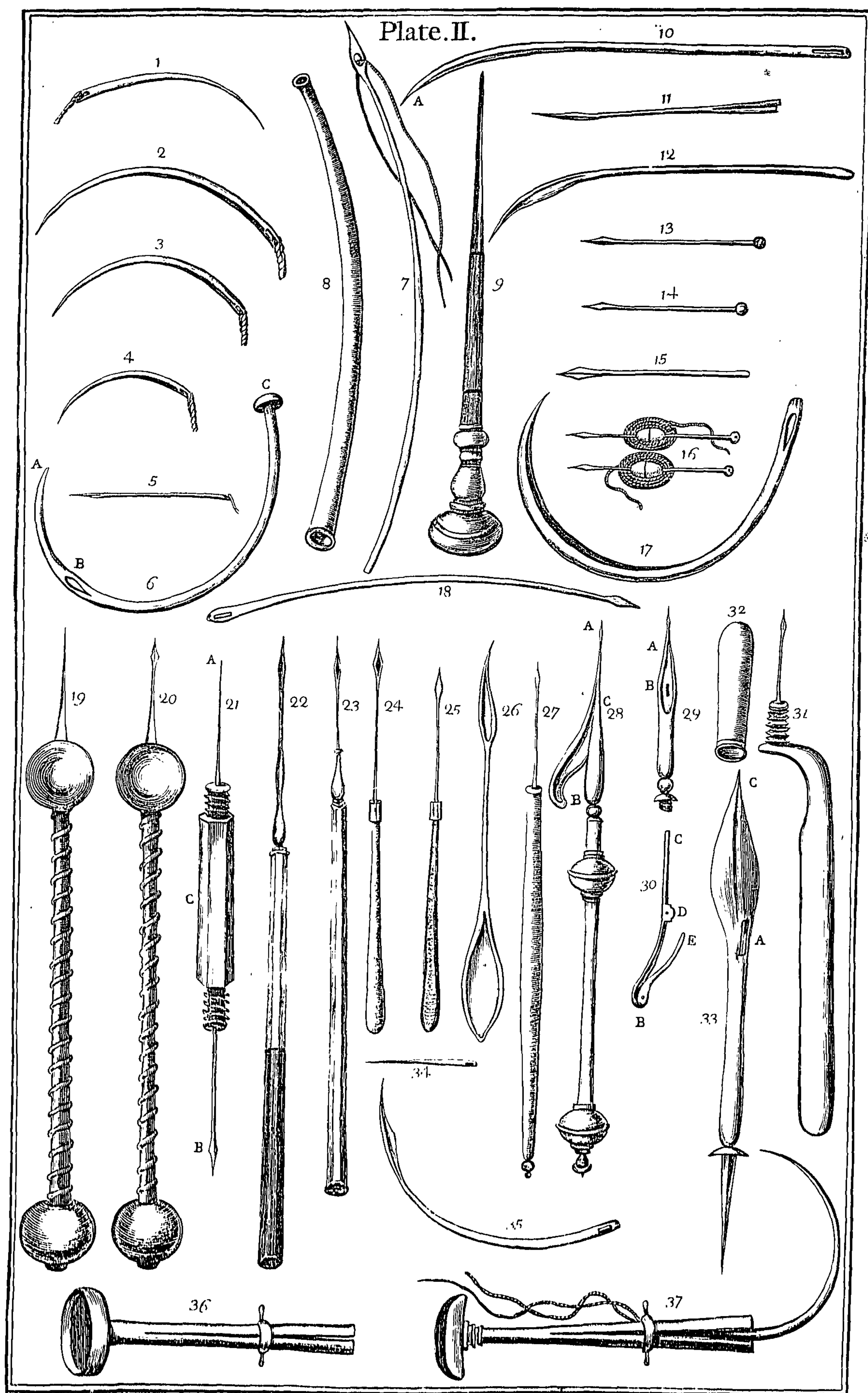
That he obtained the Honour of this Title, is almost the only Incident of his Life, of which any Knowledge has descended to our Times; but his Works, which remain, afford sufficient Testimony, that he was not exalted beyond his Merit, and his Dignity was not the Veil of Ignorance, but the Distinction of Knowledge.

His six Books of *Therapeutics*, which he composed for the Use of the Lord Chamberlain, who went on an Embassy into the North, tho' written, as he informs us, with very little Study, and designed only for the private Use of the Ambassador, contain, as Dr. Friend observes, not only a judicious Compilation of the Writings of his Predecessors, but some Observations not to be found in the earlier Authors, as in his Section on the *Palpitation of the Heart*, of which he mentions two Kinds, one proceeding from Plenitude or Heat of Blood, which is the most frequent Kind; and the other from Vapours; and directs, how they may be distinguished, by remarking that an Inequality of the Pulse always attends that which is the Consequence of Plenitude, but not that which is produced by Vapours. For this Distemper he directs to purge and bleed, in which he has been followed by many of the greatest Physicians of later Times.

His two Books, concerning the *Spirits*, are observed by Dr. Friend, to be abstracted from Galen, and to be of little Use in the Practice of Physic.

The Doctrine, relating to *Urine*, is very amply laid down by him in seven Treatises, in which at least, if we believe his own Testimony, he has made large Additions to the Observations of former Writers.

He is placed by Fabricius in the Time of Andronicus Palæologus, about the Year 1300, or, according to others, 1100. But, as he is not mentioned by any Writer of those Times, the Age, in which he lived, cannot be ascertained; nor have we any other Knowledge of his Education, Studies, or Morals, than that with which we are supplied by his own Writings, from which



which we may, with great Certainty, learn his Sentiments at least, though we cannot tell how far they influenced his Conduct.

In the Conclusion of his Discourse upon *Urines*, he speaks with a just Severity of those that engross Truth and Science, and are displeased with any Improvements made public for the Benefit of Mankind. The Slanders of these Men, says he, are Infections, against which it would be more for the Interest of the World to find an Antidote, than against any Contagion or Disease; and perhaps a Remedy, of resistless and never failing Efficacy, may always be found in a generous Confidence in God, a steady Conduct, with Respect to those with whom we converse, and a vigilant Attention to our Words and Actions.

His Discourse, upon the *animal Spirits*, is perhaps neither more nor less intelligible than modern Treatises on the same Subject; he considers it as the Minister of the Soul, and the Design of his Book is, to prescribe the Methods by which it may be enabled most vigorously to execute the Commands of the superior and presiding Power.

He had a great Propension to Theory and Ratiocination, but was not contented to form Systems in his Closet, but extended his Speculations to Distempers and Symptoms with which he was only acquainted by the Means of Books, which have always been found fallacious and uncertain Guides. For he informs us in his last Chapter on *Urines*, that, having spent some Time in the Study of Nature, he found himself strongly inclined to that of Medicine, and applied himself to the Theoretic Part, as most closely connected with natural Philosophy; but that he should have been totally discouraged from the Practice, by the Disgust and Labour with which it is attended, had he not discovered, that a just and solid Theory of the Pathology was absolutely necessary to the Science of Physic. It was my Opinion, says he, that Methods of Cure, not founded upon Reasoning, never could be relied on; and that a just Theory would make Physic not only a more easy Study, but a more successful Profession.

As the Authority of *Æturius* is not sufficiently established, to mislead any of our Readers, it is not necessary to separate with great Accuracy his Errors from his just Notions. I shall only observe, that Theory may make Physic easy, but its Success must arise from Experience.

The Works of ACTUARIUS are,

Seven Books upon URINES, never published in Greek, but translated into Latin, by Ambrosius Leo Nolanus, whose Version was revised by Goupilus, and is printed both in Octavo and in Hen. Stephen's *Artis Medicæ Principes*.

Six Books of THERAPEUTICS, not yet printed in Greek, of which the Fifth and Sixth were translated into Latin by Ruellius, whose Version was published at Paris. Henricus Mathisius translated the whole Work: His Version is extant, in the *Artis Medicæ Principes*.

One Book of the Actions or Affections, and a second of the Nutrition of the ANIMAL SPIRITS, published in Greek at Paris, by Goupilus, with the Title: *Περὶ Ἐνεργειῶν καὶ Παθῶν τοῦ ψυχικῆ Πνεύματος, καὶ τῆς κατ' αὐτὸν Διαίτης*.

A Latin Translation of this Treatise, written by Julius Alexandrinus Tridentinus, is printed both singly and in the *Artis Medicæ Principes*.

His Treatise, *De Venæ Sectione, De Diæta, his Regales and Commentarii in Hippocratis Aphorismos*, are said to be remaining in Manuscript.

ACTUATIO. That Change wrought on a Medicine, or any Thing else, taken into the Body, by the vital Heat, which is necessary, in order to make it act and have its Effect, is called its *Actuation*. *Castellus*.

ACUITAS. The same as Acrimony. *Castellus*.

ACUITIO. This signifies the Sharpening an acid Medicine by an Addition of something more acid; or, in general, the Increasing the Force of any Medicine, by an Addition of something that has the same Sort of Operation in a greater Degree.

ACULEI. The Prickles, or Thorns, of Vegetables. *Blancard*.

ACULEOSA. A Name of the *Cardus Polyacanthos*. Thistle upon Thistle. *Ray, Hist. Plant.*

ACULOS. *ἄκυλος*. The Fruit or Acorn of the Ilex, or Scarlet Oak. It is sometimes wrote (*ἄκυλος*) **ACULON**, in the neuter Gender. *Goræus, Fœsius, Theophrastus, Hesychius*.

Hippocrates (*de Vita Ratione, Lib. 2.*) says, these incline to Costiveness, but operate most this Way, when roasted.

ACUMEN. This is a Term lately introduced into Anatomy by Henricus a Deventer, in his *Artis Obstetricandi*. In Page 17, of the Edition of 1725, he calls the Protuberances of the *Ossa Innominata*, on which we sit, the *Ossa Sedentaria*, which, he says, are the Acumina of the *Ossa Pubis*. And, in Page 16, he calls the *Os Coccygis* the *Acumen Ossis Sacri*, the pointed Part of the *Os Sacrum*.

ACUMENUS. An Athenian Physician, mentioned by Plato. He was Father to Euriximachus, and a Friend to Socrates. All that we know of his Sentiments, in Regard to

Physic, is, that he preferred Walking in the Air, as an Exercise, to Walking under Portico's, in which he was undoubtedly right.

ACUPUNCTURA. *Acupuncture*. It signifies a particular Way of Bleeding, by making a great many small Punctures with a sharp Instrument, made of Gold or Silver. It is much practised in Siam, Japan, and other Oriental Nations, in all Parts of the Body, even on the Bellies of Women with Child. *Heister*.

ACUREB. Lead. *Rulandus, Johnson*.

ACURON. A Name of the *Alisma*. See **ALISMA**. *Dioscorides*.

ACUS. A Needle.

There are many chirurgical Cases, where the Use of Needles is highly necessary; in some of which a Cure cannot be completed without them, as, in penetrating Wounds of the Belly, and in divided Tendons, particularly that great one on the Heel, called the Tendo Achillis, where an incurable Lameness must be the Consequence, if the extreme Parts are not joined together again by the Needle; and in others, where, although the wounded Parts have been healed without them, yet the Length of Time, taken in the Cure, and the unseemly Cicatrices left behind, especially upon the Face, and other exposed Parts, sufficiently demonstrate the Usefulness of these Instruments, and the Folly and Unskilfulness of those Surgeons, who attempt to work without them.

In Amputations they are found to be much preferable to the actual Cautery, or any restraining Applications for securing the Blood-vessels, and preventing an Hæmorrhage.

In the Operations of the Aneurism, Bubonoccele, Lithotomy, and in all others, where either large Blood-vessels are divided, or the Lips of the Wound require to be brought nearer together, they are very useful and much forward the Cure: And in some Cases, as, in the Operation for suppressing a Cataract, and in the Hare-lip, the Cure is wholly performed by them.

These Needles are of different Figures and Sizes, strait, crooked, and flat, all very sharp, and made of well tempered Metal. *Vauguion*.

But those, used in the Hare-lip, ought to be three Fourths of their Length of Silver, and the other Part towards the Point of Steel, the silver Pin being not so offensive to a Wound as a brass or steel one. *Sharp*.

Those used in the Cataract, the Hare-lip, for making Setons, and generally for the Suture of the Tendons, and for sewing up dead Bodies, must be strait.

In Amputations, and in most if not all other Wounds, the crooked Sort are used, which, Dionis says, are preferable to the others, because there are no Parts of the Body to which they cannot be used more conveniently, than those which are strait.

The different Figures, of most Sorts, used in the several Operations, see in *Tab. II.*

Fig. 1. A crooked Needle, with its convex and concave Sides sharp. This is used only in the Suture of the Tendon, and is made thin, that but few of the Fibres of so slender a Body as a Tendon, may be injured in the passing of it. This Needle is large enough for the stitching the *Tendo Achillis*.

Fig. 2. The largest crooked Needle necessary for the tying of any Vessels, and should be used with a Ligature of the Size of that it is threaded with, it taking up the spermatic Vessels in Castration, or the crural and humeral Arteries in Amputation. This Needle may also be used in sewing up deep Wounds.

Fig. 3. A crooked Needle and Ligature of the most useful Size, being not much too little for the largest Vessels, nor a great deal too big for the smallest; and therefore, in the taking up of the greatest Number of Vessels in an Amputation, is the proper Needle to be employed. This Needle is of a convenient Size for sewing up most Wounds.

Fig. 4. A small crooked Needle and Ligature, for taking up the lesser Arteries, such as those of the Scalp, and those of the Skin, that are wounded in opening Abscesses.

Fig. 5. A strait Needle, such as Glovers use, with a three-edged Point, used in the uninterrupted Suture, in the Suture of Tendons, where the crooked one, *Fig. 1.* is not preferred, and in sewing up dead Bodies. *Sharp*.

Great Care should be taken by the Makers of these Needles, to give them a due Temper, for, if they are too soft, the Force, sometimes exerted to carry them through the Flesh, will bend them; if they are too brittle, they snap; both which Accidents may happen to be terrible Inconveniencies, if the Surgeon is not provided with a sufficient Number of them.

It is of great Importance also to give them the Form of a Circle, which makes them pass much more readily round any Vessel, than if they were made partly of a Circle, and partly of a strait Line; and, in taking up Vessels at the Bottom of a deep Wound, is absolutely necessary, it being impracticable to turn the Needle with a strait Handle, and bring it round the Vessel, when in that Situation. The convex Surface of the Needle

Needle is flat, and its Edges are sharp; its concave Side is composed of two Surfaces, rising from the Edges of the Needle, and meeting in a Ridge or Eminence, so that the Needle has three Sides. This Eminence of the Substance of the Needle on its Inside strengthens it very much, but is not continued the whole Length of the Needle, which is flat towards the Eye: some are made round in this Part, but they cannot be held steady between the Finger and Thumb, and are therefore unfit for Use. There have been Needles made with the Eminence on the convex Side, and a flat Surface on the concave Side, but I do not see any particular Advantage in that Structure. *Sharp.*

Fig. 6. A Needle frequently of Use in tying up bleeding Arteries. From *Heister.*

- A. The Point of the Needle which is blunt.
- B. The Eye.
- C. The Head.

Fig. 7. A Needle somewhat crooked, invented by Fabricius ab Aquapendente, for perforating Fistula's of the Thorax. This is drawn somewhat too short.

Fig. 8. A Silver Cannula, which, when introduced to the Bottom of a Fistula, serves as a Director for the Needle *Fig. 7.*

Fig. 9. A Needle for making a Seton. It is to be heated red-hot when used. From *Scultetus.*

Fig. 10. A Needle for cutting a Seton.

Heister says, this may also be conveniently used for cutting the Cornea in a Hypopyon. But when thus used, a Slip of Plaister must be wound round it, at the Mark A, which serves instead of an Eminence, to prevent it from going too far.

Fig. 11. A Needle for perforating the Lobe of the Ear. At the blunt Extremity it is hollow, and slit like a Larding-pin, for the Convenience of inclosing a thin Piece of Lead, which is to be left in the Perforation.

Fig. 12. A Needle, which, *Scultetus* informs us, is used by the Italian Surgeons in Castration. But he recommends it for perforating Fistula's at the depending Part. The concave Edge is sharp, the convex blunt. When it is passed into a Fistula, the sharp Edge is to be guarded by a Piece of Wax.

Fig. 13. A Needle with a triangular Point for the Hare-Lip.

Fig. 14. A Needle with a flat Point for the same.

Fig. 15. Another Sort of Needle for the same Use.

Fig. 16. represents the Manner of passing the Needles, and winding the Thread round them, in the Operation for the Hare-lip.

Fig. 17. A large crooked Needle, used in making a Seton in the Neck lengthways. *Heister.*

Fig. 18. A large Needle, very sharp at the Point, to be passed through the Basis of the Breast before Amputation. *Scultetus.*

Fig. 19. Represents the Form of the Needle used by the Antients for depressing a Cataract. This Instrument was of Silver. The Point was thin and round like a common Needle.

Fig. 20. Represents another of the same Sort, with a triangular Point.

Fig. 21. Another Sort of Needle for the same Use. The Letter A represents a long slender Steel Needle. The Letter B one that is larger. C is the Handle, made either of Silver, Brass, Ivory, or Wood.

Fig. 22. Another Needle used in Couching, with a Point somewhat broader.

Fig. 23. Another, recommended by *Brisseau*, little different from the former, except that it has a Sulcus near the Point.

Fig. 24 and 25. Represent two Needles, made Use of in the same Operation of Couching. *Fig. 24.* has a Sulcus at the Point like the preceding, and is destined for cutting the Coats of the Eye; when that is done, the Needle *Fig. 25.* which is more blunt, and more proper to depress the Cataract, must be introduced through the Sulcus, and then that, *Fig. 24.* is to be withdrawn.

Fig. 26 and 27. Two Needles to be used like those represented *Fig. 24 and 25.* From *Albini.*

Fig. 28. Another Needle, proposed by *Albini.* The Point A is to be introduced into the Eye; and, if the Cataract is membranous, it is to be laid hold of above the Part C, by depressing the Handle B. *Heister* thinks this not reducible to Practice with any Advantage.

Fig. 29 and 30. The preceding Instrument taken in Pieces.

Fig. 29. A is the Point with a Sulcus in it. B is a Foramen, which receives the Eminence D, *Fig. 30.* which is fastened by a very small Pin at C, *Fig. 28.* E, *Fig. 30.* is a thin Plate of Steel, which, by its Elasticity, keeps the Point C, *Fig. 30.* close in the Sulcus at A, *Fig. 29.* But when the Part, marked B, *Fig. 28* and 30, is depressed, the Point C, *Fig. 30.* separates from

the Sulcus A, *Fig. 29.* and so lays hold of the membranous Cataract.

Fig. 31. A Needle, contrived for couching the right Eye, with the right Hand of the Operator, by Means of a Bend at C, wherein the Nose is received, during the Operation.

Fig. 32. A Case to be screwed upon the Needle, *Fig. 31.* in order to preserve the Point when not in Use.

Fig. 33. A Needle used in making a transverse Seton, with a Foramen at A.

Fig. 34. A Needle used in joining the Tendo Achillis by Suture, when divided. *Heister.*

Fig. 35. A Needle, proper for the Gastroraphy.

Fig. 36. The Acutenaculum, or, as the French call it, Portaguille.

Fig. 37. *Garengot's* Acutenaculum.

ACUS PASTORIS, is a Name given to the Scandix, Shepherd's Needle, or Venus's Comb. See SCANDIX.

ACUS MOSCHATA, is the Geranium Moschatum. See GERANIUM.

ACUS is also a Fish thus distinguished:

ACUS. ARISTOT. *Acus secunda species*, Rondel, de Pisc. 1. 229. *Acus secunda species Rondeletii*, Gefn. de Aquat. 9. *Acus Aristotelis*, Aldrov. de Pisc. 103. Jonf. de Pisc. 36. *Acus* 7. Salv. 68. *Acus Aristotelis, seu Acus secunda species Rondeletii*, Raii Ichth. 158. Ejsd. Synop. Pisc. 46. *Acus altera species, sive Acus Aristotelis, Blennus aliquibus dicta*, Schonf. Ichth. 11. *Typhle marina*, Bellon. de Aquat. 446. *Petimbuba*, Charlt. Pisc. 16. The TOBACCO-PIPE FISH. It is found in the Adriatic Sea, or Gulf of Venice. Galen recommends the Ashes of this Fish, drank in some convenient Vehicle, for the Strangury. *Dale.*

There is another Fish also called *Acus*. Both Sorts are esteemed very indifferent Food, being juiceless, and affording very little Nourishment. *Castellus.*

ACUS also signifies Chaff.

ACUSTICUS. *Ἀκουστικός*. Belonging to Hearing. It is applied to the auditory Nerves, and to Medicines, or Instruments, used to preserve, or restore the Sense of Hearing. *Castell.*

ACUSTO Nitre. *Rulandus.*

ACUTENACULUM. This Name is given, by *Heister*, to a surgical Instrument, which the French Surgeons call Portaguille. It is a Manubrium or Handle for a Needle, contrived for the more commodious Management of it in Operations, where some Force is required to make it penetrate. See Plate II. *Fig. 36 and 37.*

ACUTUS. ACUTE. Galen explains the Meaning of this Word thus:

Many Physicians think, a Disease should be called *acute*, which soon comes to a Crisis; and the Contrary to this, reputed chronic. But this is an Error; for there is a Disease of a short Date [*βραχυχρόνιον*] not altogether *acute*, and yet contrary to a Chronic, Poly-chronic, or whatever other Name you will please to call it. This Disease, which has no Name, is of a Nature opposite to *acute*, and not without Reason. It is the Property of an *acute* Disease, which Archigemes described to be such a one as is dangerous for its Velocity, and Hippocrates by its being attended with a continual Fever, to hasten to a Crisis, for it takes the Name of *acute* from a particular Species of Motion: But it must soon cease, of Necessity, because it hurries to its proper End; for to move swiftly, is the same Thing as to hasten to the End of that Motion. The Disease, indeed, will be short on all Accounts, but called *short* and *acute* in different Respects. For the Celerity of its Motion, it will be called *acute*; and, because it is impossible to endure long under such Motion, it will also be styled *short*. But it participates of the Nature of another Distemper; for many diary Fevers, that owe their Rise to external Heats or Colds, Fatigue, Waking, Sorrow, Drunkenness, Anger, and the like, are both short and considerable, and quite void of Danger. None, whether Physician or otherwise, use to call these Distempers *acute*; and therefore *short* and *acute* are manifestly distinguished in these very Instances.

Slow is also confounded with *long*; though they convey different Ideas; for *acute* is the proper Opposite to *slow*, as *short* is to *long*. To conclude, whatever Disease is *acute*, is of short Duration, and whatever Disease is chronical must, of Necessity, be *slow*. But it does not follow, that whatever is short must be *acute*, or whatever is *slow* must, for that Reason, be chronical.

Galen is, in this Place, somewhat obscure. His Meaning seems to be, that a Disease must move with Velocity to a Crisis, and must be attended with Danger, in order to render it, properly speaking, an *acute* Distemper. This Idea of an *acute* Distemper is conformable to the Account given of it by other Authors, and Galen himself in other Places.

Febrile Distempers, or Diseases attended with a considerable Degree of Motion in the Blood, and consequent Heat, and which terminate soon, are usually called amongst us *acute Diseases*, to distinguish them from chronical Distempers, which are longer in coming to a Period, and proceed with less Velocity.

ACUTUS in general signifies sharp, or inciding, or pointed, whether it is applied to Medicines, Aliments, Instruments, Parts of the Body, or any Thing else.

ADAL. In the Sense of Paracelsus it signifies that Part of Plants, in which their medicinal Virtue consists: Or the pure and active Part of Plants, separated from the impure and inert.

ADAMAS. A *Diamond*, from a Negative, and *δαμῶν*, to conquer, because it cannot be broken.

Adamus. Offic. Worm. 102. Calc. Mus. 202. Kentm. 47. Schw. 358. Aldrov. Mus. Metal. 945. Charlt. Foss. 36. Boer. 115. De Laet. 1. Geoff. Prælect. 83. The **DIAMOND.** A precious Stone, exceeding hard, and of the greatest Value, colourless, and diaphanous like Water. The best come from the East-Indies.

As to its Virtues, and those of other precious Stones, we chuse to entertain the Reader once for all, with the Opinion of Paulus Ammannus. We differ greatly about the Names of precious Stones, while we are ignorant of some, which were known to the Antients, or call them by other Names. We are still more divided about their Value, which is merely arbitrary. But the greatest Difference of all is about their Operations, of which we have Accounts stuffed with infinite Falsities, Superstitions, and Fables. It is not our present Business to consider their Names and Value, we shall therefore be the more careful about their Virtues; and, because these Stones are taken inwardly, they ought not to be counterfeit, and they are also to produce some certain, determinate, and natural Effect. But who knows all the Cheats, and Ways of Counterfeiting, put in Practice among the Jews, Portuguese, and other Impostors? In two Respects especially they impose upon us; first, as they put off Occidental for Oriental ones; for I presuppose, according to the common Opinion, that the best Stones come from the East-Indies, which is plain also from their vivid and sparkling Light; for, who does not know the Difference between an Indian Diamond, and the others? Secondly, passing upon us Fluors for precious Stones: In a Word, Glafs for Diamonds. *Worm. p. 101.* The Effect of precious Stones ought to be natural, from something really in them, some inherent Virtue, which, according to Faber, *Panchym. L. 4. S. 4. p. 521.* they are endued with, though, perhaps, not a little clogged by corporeal Obstacles. By this very Proposition, I cut off all superstitious and fabulous Operations and Powers, which Authors have assigned to precious Stones, instead of a determinate and natural Effect, of which you have Examples in Wierus, *de Cur. Malef. p. 411, &c.* This Load of Lyes and Vanities being then discharged, I doubt, we shall find but little Reason, in our Way of Practice, to boast of our Performances by the Force of Gems. To instance in the *Diamond*, the most precious of them all, how much is our Profession obliged to its prevailing Virtue and Efficacy? Why, little or nothing: For it is false and fabulous:

1. That it resists the Anvil and Hammer without Damage.
2. That it is a Jewel of Reconciliation, extinguishing matrimonial Jarrs.
3. That, laid under the Pillow, it discovers Adultery.
4. That, to look upon a *Diamond*, hereditary in the Family, at set Times, produces the Birth of a new Member in that Family.

Away with that dark Veil of Fables, and let us see what Merit it has in Medicine. You say, it cures the Dysentery: How can that be true, when it is commonly said to exulcerate the Intestines? But, suppose it were so, who shall fix a Price on this Remedy; for less than a Dram will hardly operate? And a *Diamond* above that Weight is, to us, inestimable. The like is to be said for the Amethyst, which is thought to resist Drunkenness, if taken inwardly; for, barely worn, it can never have that Effect. This is in the Number of precious Stones, and is too dear for any Body but Princes to purchase, especially when it is the Humour of most Persons, rather to get drunk, than study how to avoid it? The Fragments of the five precious Stones, that is, the Sapphire, Granate, Emerald, Jacinth, and Cornelian, I confess, are kept in the Shops; but, if you examine into their Use and Virtues, you will find, that *Fancy had the greatest Share in bringing these Stones into the Practice of Physic*, that Princes and great Men might be taught to believe, that something wonderfully cordial lies hid within them, which, to speak the Truth, you may sooner find in the most common Flint, or any other Simple. I speak my own Thoughts: He, who maintains the contrary, is to prove his Assertion; and, *a Man of Practice will scorn to speak without Reason or Experience.* Now, why these precious Stones should contain such a comfortable and cordial Virtue, we are to seek for a Reason, and Experience gives us no Information; therefore, I conclude, that, with Respect to their medicinal Virtues, the Characters, they have acquired, are more owing to Imagination than Reality. *Dale.*

Diamond, the hardest, most transparent, and most brilliant of all Gems. It is of the Colour of the clearest Water; but this Colour is sometime mixed with white, yellow, or black,

which are reckoned Blemishes. *Diamonds* consist of crystal Laminæ, or Strata, laid upon each other, and the Joinings of these Tables may be discovered by skilful Lapidaries, and then they are easily separated with the Edge of a Knife. *Diamonds* are not calcinable by Fire, not changeable by the Sun's Rays, if the plain Surfaces of the Plates be exposed to them; but the Edges, or Extremities, easily admit the solar Fire, and then they are separated as before, and afterwards melted into a Mass of Glafs, which retains nothing of the Splendor of the *Diamond*. They are found only in the East-Indies, and in Brazil, but are not used in Physic. *Geoffroy.*

The *Diamond*, by some, is reckoned poisonous: Others will not admit it into the List of Poisons. The Accounts, in Favour of *Diamonds*, are more numerous, as well as more credible, than those which would make us believe they are of a poisonous Nature. Bembus tells a Story of one Tristan Cibelet, a Cypriot, Ambassador of Ferdinand, King of Naples, who killed himself by swallowing a *Diamond* that he wore in a Ring; but, when he adds that he also drank Aqua Fortis, it remains a Doubt, whether the *Diamond* or the Aqua Fortis was the Cause of his Death. Again we are told from Aventine, that the Poison with which a Monk of the Order of Prædicants killed Henry VII. of Luxemburgh, Emperor of the Romans, in the Eucharist, was made of a *Diamond*. But, it is hardly credible, that so small a Quantity of Dust of *Diamonds*, as was capable of being mixed with one Host, as they call it, should work so great an Effect; but it was, doubtless, a Poison of far greater Force and Efficacy.

However, that we may not be charged with omitting what Authors have written, concerning the Symptoms and Cure of those who have taken a *Diamond*, we shall relate what we find in them, as follows:

The Symptoms, consequent on swallowing a *Diamond* reduced into Powder, are, a most tormenting Pain of the Stomach and Intestines, which it excites by dissolving the Continuity of the Parts; this is followed by a Syncope, and ends in Death.

The Cure consists, first, in trying all Manner of Ways to expel the Matter of the Stone out of the Body. Here 'tis proper to begin with a Vomit, which we are to provoke with Butter, sweet Oil, fat Hen or Capon Broth, and the like.

If the Poison be got down to the Intestines, we are directed to the Use of lubricating Clysters, prepared of Mallows, Marsh-Mallows, Linseed, fat Flesh-Broths, Oil, Butter, and such like, in order to scour it off. After this, they prescribe the Blood of a Goat, either fresh or dried, with fat Flesh-Broth, which, except it be done with an Intent to provoke Urine, is certainly ordered in Compliance with the vulgar Opinion, That the Blood of a Goat breaks a *Diamond*. Some prescribe the true Balsam, to the Quantity of a Scruple, or two; and the Patient is to drink clear diuretic Wine. If all these have no Effect, Recourse is to be had to general Antidotes, and Remedies which are effectual in Corrosions and Ulcers of the Intestines, which may happen from the Nature of the Poison acting on those Parts. *Sennertus.*

ADAMAS is also a Name given by Astrologers to the Moon. *Johnson.*

ADAMANTIS. The Name of a Plant, which, according to Pliny, grows in Cappadocia and Armenia. The Fable he relates of it is, that it will make Lions fall down, and disarm them of their Fierceness. *L. 24. C. 17.*

ADAMITUM, or **ADAMITA.** The hardest white Stones, which, Paracelsus says, are a Species of Tartar. *Adamitum* he calls these Stones; and *Adamita* the Stone in the Bladder. *De Tartaro, L. 1.*

ADAMUS. **ADAM.** The first Man. Professions have, by an unaccountable Vanity, endeavoured to extend their Antiquity beyond all Bounds of Credibility. Physic, or at least, some of its Professors, have been guilty of this Weakness; but, to do them Justice, the Hint is in the following Instance taken from the Divines.

They say, Adam was inspired with a Sagacity, which made him capable of discovering the specific Nature of all natural Productions at the first Sight, and that this made him acquainted with the medicinal Virtues of all Simples. This Sagacity, they say, was necessary, in order to enable him to give Names significant of the Natures of Things. This makes Adam not only the first Physician, but a much better than any of his Posterity could possibly be, without an equal Degree of Inspiration.

It is added, that as Adam lived to a very great Age, and must have seen many medicinal and surgical Cases, his own good Sense must have furnished him with a great Number of physiological Remarks, and medicinal Observations.

ADAMUS. **ADAM.** This is used, in an alchemistical Sense, to signify the Philosophers Stone, which they call an Animal, and say it has carried its Invisible Eve in its Body, ever since the Moment they were united by the Creator. *Thaër. Chym. P. 509.*

They also tell us, that this sacred Adamical Stone is formed of the Adamical Mercury of the wise Men, which by its

Marriage and Union with the Female Eve, forms a third Substance, which is, I suppose, their celebrated Stone. *Theatr. Chym. P. 520.*

ADARCES. What they call *Adarces*, is produced in Galatia, and is a Sort of Concretion of a saltish Humour, which is bred in moist and marshy Places by Drought, and concretes about the Reeds and Grass. Its Colour is like that of the fine Powder of the Assian Stone, or Sarcophagus, and its Substance all lax and porous, much like the Bastard Sponge; so that it might be called the *Bastard Sponge of the Marshes*.

It is a Topic adapted to rub and scour the Skin in a Leprosy, Sun-burning, Tetters, Freckles, and such like Blemishes, being in the Whole of an acrimonious Quality. It is also a Drawer, and therefore good for the Sciatica. *Dioscorides, Lib. 5. Cap. 137.*

Adarces, Offic. Boet. 402. Matth. 1377. Aldrov. Mus. Metall. 213. *Adarce*, J. B. 3. 804. Chab. 575.

Whether the *Adarces* of Dioscorides be the same with Dr. Plott's, in his Natural History of Oxfordshire, I cannot determine; nor whether their Virtues be the same, has any one, that I know of, been at the Pains to try. The *Adarces* of Plotius is nothing but a Concretion of stony Particles, of a white Colour, which one Water at its Meeting with another Water, suppose a Chalybeate, precipitates, and so incrustates Grass, Twigs, and other Bodies floating by it.

Many learned Authors have observed such an Incrustation; Pancirollus, for Example, four Miles from Rome, without the Gate of Ostia, commonly called St. Paul's; and Doctor Martin Lister, in the Conduit d'Arcueil at Paris, whence he conceived a bad Opinion of it, the learned and worthy Gentleman concluding, that whatever lined the Cavities of the Pipes of an Aqueduct with a strong Cruft, would probably work the same Effect in the Reins and Bladder, especially if those Parts were infirm and tender. See his *Journey to Paris*, and *Essay on the Stone*. If you would know more of the *Adarces*, read Boetius, p. 405. *Dale*.

It is called also *Calomochmus*, or *Calomochanus*. *Salmasius*.

ADARNECH. The same as *Auripigmentum*. Orpiment. *Rulandus*.

ADARIGO. Castellus quotes this Word from Rulandus and Johnson, and explains it *Orpiment*. But neither of these Authors mention the Word. Johnson has *ADARIGES*, which he says is *Armoniacum*, which he transcribes from Rulandus, by Mistake, for *Adirige*. I am inclinable to believe he means the Salt, not the Gum, for both have been wrote thus, instead of *Ammoniacum*.

ADARRIS. Rulandus explains this by Flos Maris, which should mean the Spuma or Foam of the Sea. But according to the German Word, by which he translates it, it seems to be some Flower. However, I am rather inclined to believe it means the former.

ADARTICURATIO. A Species of Articulation of the Bones, the same as *ARTHRODIA*. See *ARTHRODIA*.

ADAXOM/E. Castellus has latinized this Word, and made it an Article in his Lexicon. The Word is from a Greek Verb *ἀδάσσειν*, to be affected with a painful Itching. *Galen*.

ADDEPHAGIA, or **ADEPHAGIA.** *Ἀδὲφαγία*, or *Ἀδδὲφαγία*. From *ἄδν*, abundantly, and *φάγειν*, to eat. Insatiability. A voracious Appetite. *Constantine. Castellus*.

ADDITAMENTUM. The same as *EPIPHYSIS*. The large Epiphysis of the Ulna, at the Elbow, is called *ADDITAMENTUM NECATUM*. *Castellus*.

ADDITIO. **ADDITION.** When any Thing that is deficient is supplied by Surgery, it is called *Addition*, *Πρόσθεσις*, to distinguish it from another Part of Surgery, which consists in removing what is redundant, and superfluous, which is called *Ἀφαιρέσις*, *Subtraction*. And of these two the whole Art of Surgery consists.

ADDUCTOR. Many Muscles are called by this Name, as

ADDUCTOR MINIMI DIGITI PEDIS, or **TRANSVERSALIS PEDIS PLACENTINI**, arises tendinous from the external *Os Sefamoidæum* of the great Toe, firmly adhering to the tendinous Part of the *Adductor Pollicis*, soon growing fleshy, it passes over the Extremity of two of the *Metacarpal* Bones, between them and the *Flexores Digitorum*, and then, growing broader, is inserted into a Tendon that proceeds from the *Expansion Tendinosa* in the Sole of the Foot, and partly into that cartilaginous Ligament that covers the Articulation of the first Joint of the third lesser Toe, with its *Os Metatarsi*, some of its fleshy Fibres being contained upon the same Part of the little Toe.

Its Use is to bring the third and fourth lesser Toes nearer the other two and the great one. *Douglas*.

ADDUCTOR OCULI, arises tendinous and fleshy, from the Edge of the Hole in the *sphenoidal Bone*, that transmits the *Optic Nerve* between the *Obliquus Major* and the *Humilis*.

Is inserted by a thin Tendon into the *Tunica Sclerotica*, where it respects the great *Canthus*.

Its Use is to bring the Eye toward the Nose. *Douglas*.

ADDUCTOR POLLICIS MANUS AD INDICEM, **ANTITHENAR RIOL.** Arises from the Outside of the upper Part of the *Os Metacarpi Indicis*.

Is inserted into the first Joint of the Thumb, sending off a thin Tendon, which runs along with the *Extensor Pollicis Longus*.

Its Use is to draw the Thumb nearer the Fore-Finger. *Douglas*.

ADDUCTOR AD MINIMUM DIGITUM. Arises a little tendinous, but chiefly fleshy, from the whole Length of the *Metacarpal* Bone, that sustains the Middle-Finger, from whence its Fibres, contracting equally on both Sides, run up to the Thumb.

Is inserted into its second Joint, a little below one of its Seed-like Bones.

Its Use is to bring the Thumb towards the Ring and Little-Finger. *Douglas*.

ADDUCTOR POLLICIS PEDIS. Arises by a long, thin, disgregated Tendon, from the *Os Calcis*, under the tendinous Part of the *Massa Carneæ*, from the *Os Cuboides*, from the *Os Cuneiforme Medium*, near the Insertion of the *Peronæus Primus*, and from the upper Part of the *Os Metatarsi* of the second Toe: It is soon dilated in a pretty large Belly.

Is inserted into the external *Os Sefamoidæum* of the Great-Toe.

Its Use is to bring this Toe nearer the rest. *Douglas*.

ADEC. Sour Milk. Or Butter-Milk. *Rulandus. Johnson*.

ADECH. Paracelsus says, *Spiritus interius agentem Distinctionis Causa Adech vocare soleo*. The Author of the Explications of the Words used by Paracelsus defines **ADECH**, the invisible internal Man (or Part of Man) which impresses the Ideas or Forms of those Things on the Mind, which are visible or tangible by the external Man. Rulandus says it is the internal and invisible Man, which conceals, or lays the Plan of whatever the external and visible Man afterwards executes or imitates with the Hands.

This any one in his Senses would probably call the Soul, but Enthusiasts, Alchymists, and Madmen, think it a Derogation from their Honour to make Use of the intelligible Dialect of the Vulgar.

ADECTOS, *Ἀδεκτός*. From *α* Negative, and *δάκνω*, to bite. It is an Epithet of those Medicines which relieve from Pain, by removing the uneasy Sensation caused by the Stimulation of acrimonious Juices, or Medicines. *Castellus* from *Tiraquellus*.

ADEDENTES. *Phagedænic*, or eating. See **PHAGEDÆNÆ**. It is applied to Ulcers. *Castellus*.

ADEHEMEST, **ΑΙΘΗΜΕΣΤ**, or **ALHOMONEC**. Rulandus explains it by *Lamina*, a thin Piece of Metal, a Blade.

ADELOS, *Ἀδελος*. From *α* Negative, and *δῆλος*, manifest. Not manifest, insensible. *Ἀδελὰ πρόσωκαιρα*, are Things which are the Subjects of the Senses when they appear, but which at the present Time do not appear; their being insensible therefore is only temporary, which the Word *πρόσωκαιρα* implies. This is a Term of the Physicians of the Empiric Sect. *Gorræus* from *Galen*.

ADELPHIA. From *Ἀδελφός*, a Relation. Thus Distempers are called by Hippocrates, which are like, bear Relation, or Analogy to each other.

ADELPHIXIS. *Ἀδελφιξις*, of the same Derivation as *Adelphia*. The Analogy, Relation, or Similitude, which some Parts of the Body, and some Distempers have with others. Or the Communication, Consent, or Sympathy of some Parts with others. *Hippocrates. Foesius*.

ADEMONIA, *Ἀδemonία*. From *α* Negative, and *δαίμων*, a Genius, Divinity, or Fortune. This is a Word used sometimes by Hippocrates, to express that great Uneasiness, Restlessness, and Anxiety, which Patients frequently complain of, in acute Diseases more especially, and is remarkable in some Kinds of hysteric Fits, of which it is mentioned as a Symptom by Hippocrates in his short Treatise, *De his quæ ad Virginem spectant*.

ADEN. *Ἄδην*. A Gland. See **GLANDULA**.

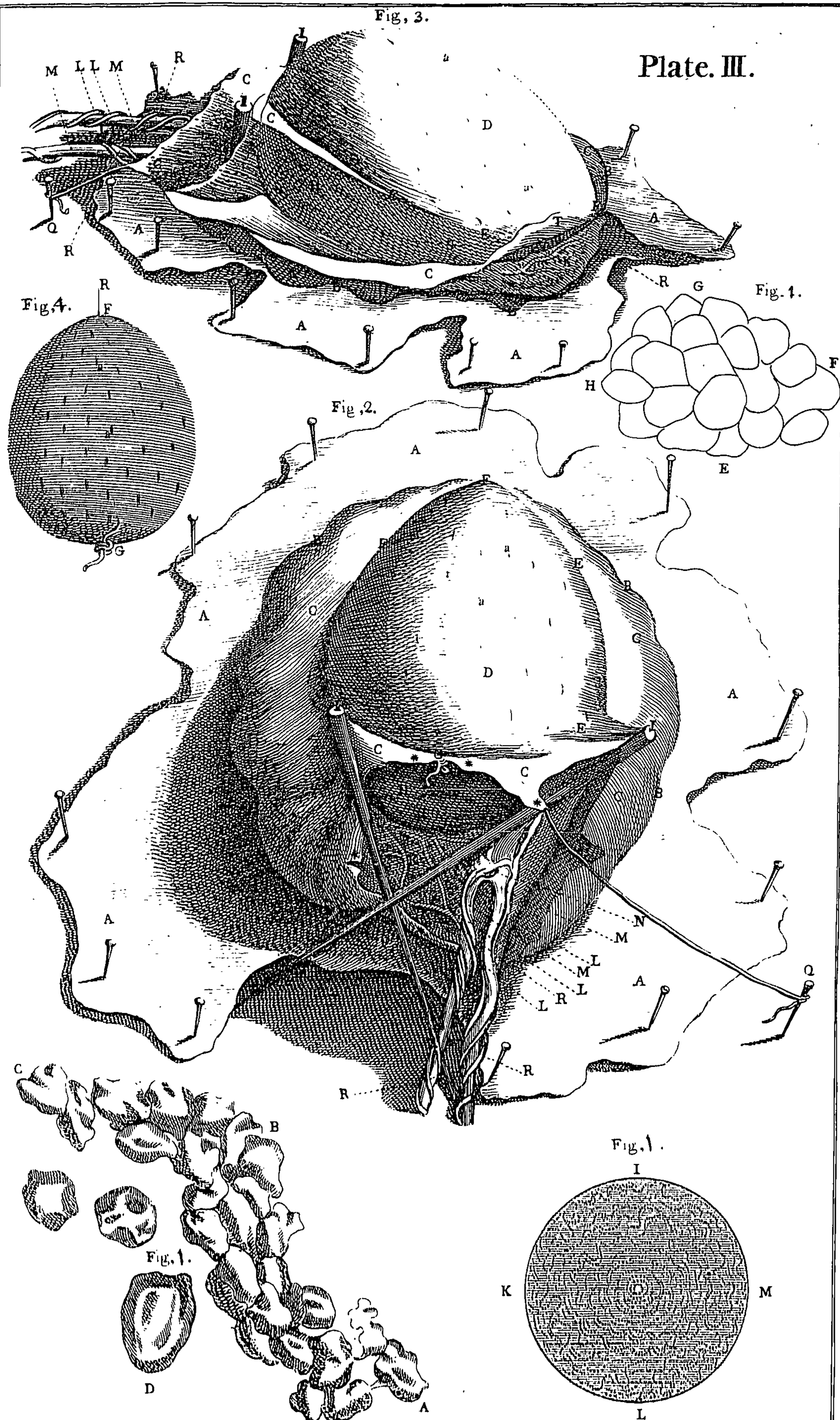
ADENIOS, *Ἀδηνός*. From *α* Negative, and *δῆνος*, Council. It signifies inadvertently, carelessly, done without Care, or Forecast. *Foesius* from *Galen* and *Hesychius*.

ADENOIDES, *Ἀδνοίδης*. From *ἄδν*, a Gland, and *ἰδός*, a Form. It signifies Glandiform, or like a Gland, and is used as an Epithet for the *Prostata*. See **PROSTATA**. *Castellus*.

ADENOSUS ABSCESSUS, is a hard, crude Tubercle, resembling a Gland, very difficult to be resolved. *Castellus* from *Marcus Aurelius Severinus*.

ADEPHAGIA. See **ADDEPHAGIA**.

ADEPS. Fat. This is an Animal Oil, contained in the *Membrana Adiposa*, or, as Boerhaave calls it, the *Membrana Cellulosa*, which is not a single Membrane, but a Congeries of a great Number of membranous Laminæ, joined irregularly to



G. Bickham, del. sc.

to each other at different Distances, so as to form numerous Interstices of different Capacities, which communicate with each other. These Interstices have been named *Cellulæ*, and the Substance made up of them, the *cellulous Substance*.

The Thickness of the *Membrana Adiposa* is not the same all over the Body, and depends on the Number of Laminæ, of which it is made up. It adheres very closely to the Skin, runs in between the Muscles in general, and between their several Fibres in particular, and communicates with the Membrane which lines the Inside of the Thorax and Abdomen.

This Structure is demonstrated every Day by Butchers, in blowing up their Meat, when newly killed, in doing which, they not only swell the *Membrana Adiposa*, but the Air insinuates itself likewise in the Interstices of the Muscles, and penetrates even to the Viscera, producing a Kind of artificial Emphysema.

These cellular Interstices are so many little Bags or Satchels, filled with an unctuous or oily Juice, more or less liquid, which is called *Fat*, the different Consistence of which depends not only on that of the oily Substance, but on the Size, Extent, and Subdivision of the Cells.

It is generally known, that the illustrious Malpighi took a great deal of Pains about this Substance; that in Birds and Frogs, the Viscera and Vessels of which are transparent, he thought he saw a Kind of Ductus Adiposi; and that, by pressing these Ducts, he observed oily Drops to run distinctly into the small Ramifications of the *Vena Portæ*.

The Manufacture of Soap, the Composition of Unguentum Nutritum, and the different Mixtures of Oils with saline and acid Liquors, give us some Idea, at least, of the Formation of Fat in the human Body; but the Organ which separates it from the Mass of Blood, which ought to be the Subject of our present Inquiry, is not as yet sufficiently known.

Fat is more fluid in living than in dead Bodies. It melts with the Heat of the Fingers in handling it, and its Fluidity is in Part obstructed by the Sacculi, which contain it. To take it intirely out of these Bags, the Method is to set the Whole over the Fire in a proper Vessel; for then the Bags burst, and swim in Clusters in the true oily Fluid.

This Substance increases in Quantity in the Body, by Rest and good Living, and, on the contrary, diminishes by hard Labour and a spare Diet. Why Nourishment should have this Effect, is easily conceived, and it is likewise easy to see, that an idle sedentary Life must render the Fat less fluid, and consequently more capable of blocking up the Passages of insensible Transpiration, through which it would otherwise run off.

Hard Labour dissolves it, and consequently fits it for passing out of the Body, with the other Matter of insensible Transpiration. Some are of Opinion, that it returns into the Mass of Blood, by the capillary Veins, and that it can, for some certain Time, supply the Want of Nourishment.

By this, they think, the long Abstinence of some Animals may be explained; but, I am apt to believe, the mere Decrease of cutaneous Transpiration, occasioned by the continual Rest and Inaction of these Animals, has a great Share in this Effect.

The proportional Differences, in the Thickness of this *Membrana Adiposa*, are determined, and may be observed to be regular in some Parts of the Body, where either Beauty or Use required it.

Thus we find it in great Quantities, where the Interstices of the Muscles would otherwise have left disagreeable hollow or void Places; but, being filled, and as it were padded with Fat, the Skin is raised, and an agreeable Form given to the Part.

The Appearance of a Person moderately fat, of a Person extremely lean, and of a dead Carcass, from which all the Fat has been removed, proves sufficiently what I have said.

In some Parts of the Body the Fat serves for a Cushion, Pillow, or Mattress, as on the Buttocks, where the Laminæ and Cells are very numerous. In other Parts this Membrane has few or no Laminæ, and consequently little or no Fat, as on the Forehead, Elbows, &c.

In some Places it seems to be braced down by a Kind of natural Contraction in Form of a Fold; as in that Fold which separates the Basis of the Chin from the Neck; and in that which distinguishes the Buttocks from the rest of the Thigh. We observe it likewise to be intirely sunk, or, as it were, perforated by a Kind of Dimple or Fossula, as in the Navel of fat Persons.

These Depressions and Folds are never obliterated, let the Person be ever so fat, because they are natural, and depend on the particular Conformation of the *Membrana Adiposa*, the Laminæ of which are wanting at these Places.

The Fat is likewise of great Use to the Muscles in preserving the Flexibility necessary for their Actions, and in preventing or lessening their mutual Frictions. This Use is of the same Kind with that of the unctuous Matter found in the Joints.

Lastly, the Fat is a fine oily Substance in its natural State, and may be some Defence against the Cold, which we find

makes more Impression on lean than on fat Persons. It is for this Reason, that to guard themselves against the excessive Colds of hard Winters, and to prevent Chilblains, Travellers rub the Extremities of their Bodies, and especially their Feet, with spiritous Oils, such as that of Turpentine, &c.

This Mass of Fat, which makes an universal Integument of the Body, is different from that which is found in the Abdomen, Thorax, Canal of the Spina Dorsi, Articulations of the Bones, and in the Bones themselves.

But the Differences of all these particular Masses of Fat consists chiefly, as I have said, in the Thickness or Firmness of the Pellicles, in the Largeness or Smallness of the Cells, and in the Consistence, Fluidity, and Subtlety of the oily Matter. *Winslow's Anatomy.*

To this Account of the Fat I shall add that of the celebrated Leeuwenhoek.

After the Discoveries that I had made concerning the Circulation of the Blood, particularly that the Blood-vessels had no Endings, I began to consider how the fat Particles could be formed, since I did not think that they were separated from the Blood, and came out of the Blood-vessels. But having now plainly discovered, that the so called Membranes were nothing but very small Vessels, and believing that they were created for no other End but to transport Nutriment, as also that there was no Circulation in these Vessels, I imagined, that the Matter, which we call Fat, was brought into them, which, when there was too great a Supply of Nutriment, so that it could not be forced farther on, must be driven out of these Vessels; for all the Particles of Fat, that I have as yet observed, are inclosed in small Films.

This Original of the Fat is to me much more credible, than that it should be forced out of the Blood-vessels; and yet how these fatty Particles, which consist of large Globules, and those of still smaller Globules (as it appears to me) are made and formed; I cannot as yet determine: As also where these Vessels, which constitute what we call Membranes, have their Beginning, and how this Fat is brought into them.

I had in my Drawer a Piece of Ox's Flesh, that I believe had lain there about four Years, wrapped up in a Paper, which Piece I found in some Places to be covered with a Membrane; from this I cut off several small Slices along with the Membrane, and I found that, near the Membrane, there lay about sixteen or eighteen nervous Fibrils, which, in the drying of the Flesh, were so squeezed together, that they were almost twice as long as they were broad. In some of which I saw very distinctly those Vessels which are in the Nerves.

These nervous Fibrillæ were inclosed by a Sort of Half-round, separating them from their muscular Fibres, which Half-round consisted of a Row of small tendinous Fibrillæ, each of which was about twice as thick as a Hair of a Man's Beard. Without these tendinous Fibrillæ lay the muscular Fibres, that had been cut through transversely, and in this Part of the Half-round there were several Apertures, which seemed in the Microscope to be big enough for Hemp-seed to pass through them, which might well be taken for Vessels, but that there lay so many of them together. But, considering that the Nerves are commonly covered with fatty Particles, I concluded, that these Apertures were no Vessels, but mere fatty Particles, which I found to be true when I had cut through them, and discovered that the inward Fat was eaten out by the Mites, which had left only the Husks, or Cortices, of the fat Globules behind, which Cortices I never had as yet been able to discover, because the Cortices of the fat Globules would, upon any Heat, melt away as fast as the inward Fat.

I have formerly said, that the Matter which we call Meal, or Flour, in Wheat, Rye, Barley, Oats, and in all Sorts of Beans, is shut up, as it were, in little Cells, or Chambers, and that those little Cells are separated from each other by thin Membranes, which are thinnest in Wheat: And as in the Enquiry into what is called the Periosteum of an Ox or Sheep, I have often broke in Pieces the fat Particles thereof, and as often viewed them through a Microscope; so have I likewise placed a few of the fat Globules upon a clean glass Plate, and held it over a Coal-fire, or the Flame of a Candle, till they were all melted and reduced into a liquid Matter; so that not only the Fat, which was shut up in the Skin of the fat Globules, but likewise the Skin itself was reduced to a fluid Matter; and thereupon I immediately brought it before my Sight, and, viewing it with Attention, perceived, when the melted Fat was cold, that there were different Matters inclosed in the said fat Globules; for there appeared an inconceivable great Number of exceeding small coagulated Particles, and the rest of the Parts, of which the Fat was composed, lay in one smooth and even Substance, and I have considered, whether there might not be inclosed, in such a Globule of Fat, so many little Cells and Partitions, as we see in a little Grain or Seed, but, if it be so, it will remain concealed from our Eyes.

But having now again carefully contemplated these coagulated Globules of Fat, many of which go to the making of one little

little Bubble, I did often fancy, that I saw, that each of the said small Particles was provided with such a transparent Dent, as I have before said, that the Meal Globules of Wheat, &c. are furnished with.

Nay, I have fancied to myself, though it did not appear to my Sight, that each fat Particle is furnished with little Cells within, like the Seeds or Fruits of Plants.

Since I wrote this, I was informed my Butcher had killed a Sheep of an uncommon Bigness, and that it weighed 140 Pounds, without the Fat that they took out of it, after it was killed, which weighed 51 Pounds, so that the whole Sheep weighed above 190 Pounds.

I caused a Piece of the Fat that grew about the Kidnies to be brought to me, imagining, that its fat Particles would be of a coarser Grain than those of ordinary Sheep; for I have observed several Times, that the bigger an Ox was, the larger were the fat Particles thereof; and since not one Man in a Thousand has any Knowledge of the Contexture of these fat Particles, for we find that there are not any two of one and the same Figure, they being compressed by other Particles with which they are surrounded, I have caused some few of these fat Particles to be drawn, as between A. B. C. D. *Plate III. Fig. 1.*

Now when we meet with one of these little Bundles of fat Particles, as has frequently occurred to us, in which the fat Particles were four Times this Thickness, I imagine, that such fat Particles cannot be produced out of one single adipose Vessel, but that out of such a Vessel several small Springs issue forth, and out of each of those small Springs proceed others still smaller, and that out of these Particles one larger fat Particle is formed like a Bunch of Grapes.

Now I cut off with a Razor the Fat in several Places of a greater Piece, as thin as I could, laying the thin Pieces upon several glass Plates, and put them upon a Coal-fire, so as to cause them to melt; and, being melted, immediately viewed them with a magnifying Glass, when I observed the Skins, or membranous Coats of the fat Globules lying among the melting Particles, and in the said melting Particles there was nothing to be perceived but a limpid Matter, surrounded with small Air-bubbles; but, when the Fat was congealed, we could observe but very little of the Membranes, because they were covered with the Particles of Fat, with which these Membranes or Skins had before been filled.

I caused a few of these Skins of the fat Globules to be drawn, between E. F. G. H. *Plate III. Fig. 1.* During the said Observation, I fixed my Eye with Attention upon the fat Particles of the Sheep which had been melted, and were again coagulated; and I could not but judge, that these fat Particles, which were exceeding small, were analogous to that internal Matter, wherewith some of the smallest little Seeds are furnished, and, in a great many of these exceeding small Particles, I could in clear Weather discover some Transparency.

Moreover, I cut as thin Slices as it was possible of the Fat, yea, so thin, that five or six of them did not weigh a Grain, and put them into a little Water, in order to try whether I could make any farther Discoveries thereby, with Respect to the small Particles of Fat, but it was in vain; only I saw floating upon the Water very small Particles of Fat, which were coagulated in a spherical Figure, and the very biggest of those fat Particles was no bigger than a Grain of Sand. I placed these Particles upon a glass Plate, and viewing them with a Microscope, I observed the Figure, which I mentioned above, as plain as before, and other fat Particles seemed to be of a different Figure; I put one of these into the Hands of my Painter, or Designer, bidding him to draw what he had observed, it being the Figure of one of the said fat Particles, which was coagulated on the Water, as it is represented between I. K. L. M. *Plate III. Fig. 1.* which was not very conformable with the other melted fat Particles; for, in the doing it, all the Particles did not melt, for the fat Particles are not all extracted by the Water, and coagulated upon the Water in smaller and greater globular Particles; and when we take out of it the Remainder of the thin Slices of Fat, which float upon the Water, and view them with a Microscope, we find, that many of the fat Particles appear intire to the Eye; and whereas they were before very smooth and even in their Sides, they were now changed into rough and uneven Particles; so that one should be apt to think, that there were two different Sorts of Particles in the Fat, and that one Sort melted more easily than the other.

Now in order to get these melted Particles of Fat out of the Water, without altering them, I made Use of a round Glass, and with it skimmed the Superficies of the Water, by which Means some of the coagulated Particles stuck to the Glass. Moreover, I did again melt some of the fat Particles, which had been coagulated upon the Water, over a Coal-fire, as they lay in the Water; and, when they were again coagulated, viewing them with a Microscope, I found the small fat Particles to be yet smaller than those that were melted out of the Water.

In this last Observation I observed, with Astonishment, the inconceivable Number of Veins and Membranes, which were diffused through the Fat, and the Multitude of separated fat Particles, that were involved in their several Membranes.

After this there was laid before me the Hind-quarter of a sucking Lamb, over which was spread what we call the Net, or Caul; and having cut off some Pieces of the said Net, or Caul, upon which there was little or no Fat, with a pair of Scissars, and placing them before a Microscope, I observed again, that the fat Particles, where there were very few of them included between the Membranes, were of a more globular Figure than in other Parts, where a good many lay together, and that in other Places they were pressed and bruised, which I fancy was occasioned by the Butcher's squeezing the Caul in that Place with his Fingers; and in another Place the fat Particles had been so torn in Pieces, that I could see nothing remaining but the Skins of the fat Globules.

Moreover, I saw that the fat Particles had such a Pinch, or Dent, in them, as I have shewn, that there were in the Globules of Flour of Wheat; from which Spectacle, I am confirmed, more than before, in my Opinion, that the fat Globules might be separated intirely, or in Part, from the Skin with which they are surrounded, by opening the Dents, without breaking the Skin.

Then I took off the thin Membranes, which encompassed the fat Particles, and viewing them with a Microscope, observed, that the fat Particles had imprinted a roundish Figure on the Membranes inclining to a hexangular Shape, that it was a Pleasure to look on them; but in other Parts they were of an oval Figure.

Moreover, I took a flat Fish, which we call *Plaife*, and took off the Fat which adhered to the Vessels, or Bones, and viewed it with a Microscope, and observed, that the fat Particles were of several Sizes; and some were so small, that I judged that fifty of the least were no bigger than one great fat Globule; and moreover, I saw that many of the fat Globules had such a Dent in them, as we find in the Meal or Flour of those little white Beans, which we call French or Kidney-beans.

Afterwards my Servant brought to me the Fat of a Peach, which was nine or ten Inches long, and taking a little of it, I viewed it with a Microscope, but could not discover any small Particles in it, nor any internal Dent, as I had observed in the Fat of a small *Plaife*.

After that the Fat of the Peach had lain an Hour or two upon the Glass, I viewed it again, and observed, that the Particles were become smaller, and that the Skin of the fat Particles, which as yet was beset with some fat Particles, was, as it were, shrunk or wrinkled, and the Fat, that was burst out, lay about the fat Particles, and was so fluid and transparent, that we could not discover any Parts in it.

From this Observation I began to think, whether each of these fat Particles was not provided with an Orifice, or Hole, out of which the Fat might be protruded at all Times, as often as the Parts of the Fish stood in Need of Nourishment, without an intire Laying open the Skin of the fat Globules; for, we constantly find, that when the Eggs of the Peach, which we call the *Roe*, increase in Bigness, its Fat decreases, and that in such a Manner, that when the said Eggs, or *Roe*, are arrived at their utmost Bigness, there is seldom or never any Fat to be seen upon the Intestines of the Fish.

As to the Composition of Fat, it is formed by a small Portion of Earth, joined with elementary Fire, acid Salt, and Water, according to the Account Geoffroy gives of it, who adds, that if Oil of Olives and Spirit of Nitre be mixed together, and digested, a Substance will be found in every Respect resembling the Fat of Animals.

This confirms what I said under the Article of *Acid*, in Regard to the Inflammability of animal Oils, which see.

As to the medicinal Use of Fat, Quincy having mentioned that of the Goose, Dog, Man, Viper, and Bear, says, these are to be met with in the Intention of Ripening and Drawing, because they are reckoned to be of a penetrating Nature, and therefore suited to dissolve and rarefy the Humours inclosed in Tumors, and bring them, as it is called, to Maturity. There are some specific Virtues ascribed to these in particular Cases, but they have not been supported by Reason or Experience. And they seem not possessed of any Properties different from other Substances of like Kind, unless what may arise out of their different Consistencies and Degrees of Volatility.

I apprehend by this, that the Author means, there is little or no Difference with Respect to Medicine, betwixt the Fat of one Animal and another. But if we consider, that Fat is not an homogeneous Substance, but composed of Principles greatly different from each other, as are Earth, Fire, Water, and acid Salts; and again, that animal Fats have always a small Portion of alkaline volatile Salts mixed with them, we shall find Reason to believe, that the Fat of one Animal may have medicinal Effects, very different from that of another, as the Proportions, and Combinations of the component Principles vary, and as the volatile Salts are more or less volatilized, by circulating in the

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the animal Juices. I should suspect the Fat of Animals who use little Exercise, and live on Vegetables, to be the most lenient and mollifying; and that of Animals which move a great deal, or feed on other Animals, to be more penetrating, warming, and resolvent, because, in these, the Juices in general are more exalted and attenuated than in others.

Thus we see the specific Virtues, ascribed to some animal Fats in particular Cases, are supported by Reason; and as for Experience, we have that of all Mankind to warrant them, who have mentioned them from the Infancy of Physic to this Day, unless a few, who have of late affected to determine the Efficacy of Medicines by particular Theories, without consulting Experience, the only sure Guide, which in the present Case, if carefully attended to, would have convinced Dr. Quincy, as it has me, that the Fats of different Animals are actually endued with different medicinal Virtues.

In the Course of this Work, I shall have frequent Occasions of making Remarks upon this Folly of contradicting actual Matters of Fact, only because their Causes are not obvious and manifest. Mean Time I will give some Account of the medicinal Virtues of the Fats found in different Animals.

F A T S OF B E A S T S.

Of the HORSE.

The Fat of the Horse is proper for anointing luxated Limbs. *Dale.*

Of Cows, or OXEN.

All Sorts of Fats are endued with the Virtues of Warming, Softening, and Rarefying.

But that of Bulls, Cows, and Calves, is in some little Degree restraining. *Dioscorides.*

Beef's Fat, or Suet, is particularly recommended in Mortifications of the Intestines, a Tenesmus, for Ulcers, and Chaps of the Lips, and gouty, or scirrhus Disorders. The Fat of the Buffalo is in Virtue like the Preceding. *Dale.*

The Fat is emollient, and is used in Balsams, Ointments, and Plaisters. It eases Pains proceeding from Colds; cures Kibes and Chilblains, and heals the Chapping of the Hands, Lips, Nipples, Fundament, &c. *Pomet.*

Of LIONS.

The Fat of Lions is in Virtue like those of Cows. *Dioscorides.*

The Fat of Lions, washed, according to the Directions of Dioscorides, and dropped into the Ear, eases Pains thereof; it is a good Application for Limbs in Danger of a Mortification from Cold. It is useful in scirrhus Tumors, and Kibes. *Dale.*

Of ELEPHANTS.

The Fat of Elephants keeps Serpents and venomous Reptiles away from those that are anointed with it. *Dioscorides.*

Of STAGS.

The Fat of Stags has also the same good Effects as that of Elephants, in preserving from venomous Reptiles. *Dioscorides.*

Hippocrates recommends the Fat of a Stag as a mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.*

The Fat of Stags is said to be good for mollifying Tumors, for Kibes, and for easing Pains. *Dale.*

The Fat, or Suet, is equal to the best Emollient. It lenifies and softens Callosities, Contractions, scirrhus and cancerous Tumors. *Pomet.*

Of the GOAT.

Hippocrates recommends the Fat of a Goat as a good mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.*

The Fat of Goats is somewhat astringent. The Fat of the He-goat is a powerful Discutient, and for that Reason a proper Topic in the Gout, beat with Trickles of Goats, and Saffron. *Dioscorides.*

The Suet, or Fat, of the He-goat powerfully discuties, is useful in the Gout, cures the Strangury, and relieves the Pains caused by the Piles. *Dale.*

We bring from Auvergne, near Lyons, and Nevers, a great deal of Goats-suet, it being not only of some small Use in Physic, especially that of the He-goat, but is also used to many different Purposes. It ought to be dry, of a clear White within and without, and take Care it be not mixed with Mutton Suet, which it is not easy to distinguish; therefore do not deal with Merchants you cannot trust.

Of SHEEP.

Hippocrates recommends the Fat of a Sheep as a mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.* and, *De Morbis Mulierum, L. 2.*

The same Author advises the Fat taken from the Kidney of a Sheep, as preferable to any other, to be mixed with Elaterium for the forming a Pessary, to promote the Menses. *De Morbis Mulierum, L. 1.*

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Hippocrates advises the Fat of Sheep boiled with Lentiles and Wine, for washing painful Exulcerations of the Uterus. *De Morb. Mul. L. 1.*

And in many other Places he advises Pessaries of Sheep's Fat made up in Wool, as being very mollifying.

Hippocrates directs the Fat of a Sheep to be taken internally, to prevent a Miscarriage. *De his quæ Uterum non gerunt.*

Sheep's Fat is a proper Topic in the Gout. *Dioscorides.*

The Suet, or Fat, of Sheep, given in red Wine, checks Hæmorrhages, stops Diarrhœas, Dysenteries, and cures the Gripes. *Dale.*

Of SWINE.

Hippocrates advises the Fat of Swine, boiled with Lentiles and Wine, as proper to wash painful Exulcerations of the Womb. *De Morb. Mul. L. 1.*

Swine's Fat, or Lard, is accommodated to Disorders of the Uterus, and Anus, and for Burns. *Dioscorides.*

The Fat of Swine is said to heat less than that of other Animals, and therefore it is more proper in refrigerating Ointments. It eases inveterate Pains in the Loins and Joints.

The Fat of the Wild Boar has the same Virtues in a greater Degree. *Dale.*

Of ASSES.

The Fat of Asses is reported to make Scars of the same Colour with the rest of the Skin. *Dioscorides.*

Of BEARS.

Bears Fat is excellent for making the Hair grow, and a good Application for Kibes. *Dioscorides.*

The Fat of a Bear warms, mollifies, and discuties. It cures Baldness, is good for the arthritic Pains, and cures Swellings of the Parotid Glands, and other Tumors, as also Ulcers in the Legs. *Dale.*

Bears Grease and Tallow are brought from the Mountains of Switzerland, Savoy, and Canada. The Grease, if it be good, ought to be fresh, or new melted, greyish, gluey, and of a strong ill Smell, of a middle Consistence, that is to say, betwixt hard and soft; and meddle not with that which is white and hard, being mixed with Suet. This Fat, or Grease, is a sovereign Remedy for curing cold rheumatic Humours. It is also much valued for easing Pains of the Gout, by rubbing the afflicted Part, and to make the Hair grow; it being esteemed admirable against Baldness, especially when incorporated with Bees in Powder and Nut-oil. As for the Bears-tallow, there is but very little of it brought into France, it being little used, and that only by those who will not come up to the Price of the Grease. *Pomet.*

Of FOXES.

The Fat of Foxes is good in Disorders of the Ears. *Dioscorides.*

The Fat of the Fox is good for Convulsions, Tremors, and Contractions of the Limbs; it is useful in Pains of the Ears; Wounds of the Head, and Baldness. *Dale.*

Of the CAMEL.

The Grease, or Fat, is emollient, softening, and resolute, proper for the Piles or Hemorrhoids. *Lemery.*

Of the MOUSE.

At Venice they sell a Pomatum at an extravagant Rate, made of the Fat of Mice, which is famous for curing Baldness.

Of the CAT.

The Fat of a Cat is heating, emollient, and discutient, and wonderfully relieves Affections of the Joints. *Dale.*

Of DOGS.

The Fat of a Dog is warmer than that of most other Animals, and is given internally, to deterge and consolidate Wounds and Exulcerations, and therefore it is proper in a Phthisis, or to dissolve Blood coagulated by Falls or Bruises. Externally it is applied in the Gout, to ease Pains of the Ears, to kill Nits and Lice, to cure Deafness, and in the Itch. *Dale.*

Of WOLVES.

The Fat of the Wolf is equal in Virtues to that of the Dog. It warms, digests, cures Disorders of the Joints, and is good for Eyes that are inflamed. *Dale.*

If the Bridle of a Horse is anointed with the Fat of a Wolf, it is said the Animal will not move forwards.

Of the OTTER.

The Fat of the Otter is by Hollerus esteemed a very good Ingredient in Applications for Disorders of the Joints. *Dale.*

Of the HEDGE-HOG.

The Fat of the Urchin or Hedge-hog is reckoned by Hartman a Specific in Ruptures. *Dale.*

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Of the HIPPOPOTAMUS, or SEA-HORSE.

The Fat of the Hippopotamus, or Sea-horse, applied to the Pulse, or Stomach, relieves against Fits of the Ague, and is emollient and nervous. *Pomet.*

Of the CHAMOIS.

The Fat of the Chamois, or Gems (*Capra Alpina*) is recommended in a Consumption, and Exulcerations of the Lungs. *Dale.*

Of the HARE.

The Fat of a Hare, applied externally, has such a drawing Quality, especially when old, that it is said to bring away Thorns accidentally fixed in the Skin, or Flesh. It breaks Abscesses, and cures Pains of the Teeth. *Dale.*

Of the RABBIT.

The Fat of a Rabbit is useful for Indurations of the Joints and Nerves: (*I suppose he means the Tendons*). *Dale.*

Of the BEAVER.

The Fat of the Beaver is peculiarly adapted to Disorders of the Uterus, and nervous System, and therefore is useful in Epilepsies, Palsies, Convulsions, and Apoplexies. *Dale.*

The Fat of a Beaver is used as an Ointment against the Palsy, Convulsions, hysterical Fits, Apoplexy, and falling Sickness. Take half a Pound of Beavers Fat, Oils of Rosemary, Nutmegs, Amber, and Mace, of each one Dram. *Pomet.*

Of the TIGER.

The Fat of a Tiger agrees in Virtues with that of a Dog. *Dale.*

Of the LEOPARD.

The Fat of a Leopard is reported to be an excellent Cosmetic. *Dale.*

Of the LYNX.

The Fat of the Lynx, or Ounce, is recommended for Limbs that are paralytic, convulsed, or luxated. *Dale.*

Of the CROCODILE.

The Fat of the Crocodile is recommended in Wounds and Cancers. *Dale.*

Of VIPERS.

The Fat of the Viper is sudorific, resolute, and anodyne, taken internally or externally, the Dose from one Drop to six. *Lemery.*

Of HUMAN FAT.

Human Fat is said to strengthen and discuss, to relieve Pains, and cure Contractions, to mollify the Hardness of Scars, and to take away unseemly Marks left by the small Pox. *Dale.*

Human Fat or Grease is brought us from several Parts, as every Body knows in Paris; the public Executioner sells it to those that want it; so that the Druggists and Apothecaries sell very little. Nevertheless, they vend a Sort that is prepared with aromatical Herbs, and which is without Comparison much better than that which comes from the Hands of the Hang-man. This Adeps, or Axungia, is reckoned very good for Rheumatisms, and other Diseases, proceeding from a cold Cause.

Man's Grease is emollient, discussive, anodyne, and anti-paralytic. It is good against the Gout and contracted Nerves, made into an Ointment, as follows: Man's Grease two Pounds; Gum Elemi half a Pound; Bees-wax and Turpentine, of each one Pound; Balm of Gilead or Peru, four Ounces; mix and make an Ointment by melting all together. *Pomet.*

OF THE FAT OF BIRDS.

Of GEESE.

Hippocrates recommends the Fat of a Goose as a mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.*

The same Author advises the Fat of a Goose, as a proper Ointment for painful Exulcerations of the Uterus. *De Morbis Mulierum, L. 1.*

Hippocrates says, the Fat of Geese is the best for Pessaries. *De Morbis Mulierum, L. 2.* And he advises Pessaries of Goose Grease in several other Places.

Hippocrates advises to take the Fat of Geese internally to prevent a Miscarriage. *De his quæ Uterum non gerunt.*

The Fat of Geese is proper in the Disorders of Women; and is useful in Chaps of the Lips, to smooth the Skin, and to ease Pains in the Ears. *Dioscorides.*

The Fat of the Goose is more hot than that of the Swine, and, because of its Subtlety, sooner penetrates and resolves, it is therefore used as a Clyster in Eroions of the Intestines. It makes the Hair grow in an Alopecia, heals Chaps of the Lips, removes Noises in the Ears, cures Spasms and Rigidity of the

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Nerves, (*Tendons I suppose he means*) and prevents Costiveness, especially in Children. *Dale.*

The Virtues of the Fat of Wild Geese are the same, but in a greater Degree.

Of HENS.

The Fat of Hens is recommended by Dioscorides in the Disorders of Women, and is useful in Chaps of the Lips to smooth the Skin, and to ease Pains in the Ears. *Dioscorides.*

The Fat of Hens and Capons warms and moistens, is emollient and lenient, and is said to be of a middle Nature betwixt that of Swine and Geese, whose Acrimony it corrects, It is good for Chaps of the Lips, Pains of the Ears, and Pustules on the Eyes. *Dale.*

Of the OSTRICH.

The Fat of the Ostrich is a proper Application for the nervous Parts, by Inunction it mollifies an indurated Spleen, and relieves nephritic Pains. *Dale from Schroder.*

The Fat is hotter than Goose Grease, and may be used with great Advantage to dissolve hard Swellings, relax contracted Nerves, and ease Pains. *Pomet.*

Of the SWAN.

The Fat of a Swan is emollient, lenient, attenuant, and therefore useful in the Piles, and Indurations of the Womb; it clears the Eyes, and, mixed with Wine, takes off Freckles, or Pimples from the Skin. *Dale.*

Of the FRIGATE.

The Oil or Fat of these Creatures is a sovereign Remedy for sciatic Pains, and for all others, proceeding from a cold Cause. It is held in great Esteem throughout all the Indies as a precious Medicine. *Pomet.*

Of the SHELL-DRAKE.

The Fat of the Vulpanfer, or Shell-drake, is recommended in an Herpes, and Tumors of the Face. *Dale.*

Of the RAVEN.

The Fat of the Raven is said to render the Hair black. *Dale.*

Of the PEACOCK.

The Fat of the Peacock, mixed with the Juice of Rue and Honey, is excellent in the Cure of a Colic. *Dale.*

Of the QUAIL.

The Fat of the Quail is said to be effectual in taking Spots off the Eyes. *Dale.*

Of the TURTLE-DOVE.

The Fat of the Turtle-dove is recommended as an Ointment proper for the Kidnies, Belly, Breast, and Groins. *Dale from Schroder.*

Of the VULTURE.

The Fat of the Vulture is peculiarly adapted to Disorders of the Nerves. *Dale.*

The Fat is the only Thing belonging to the Vulture Kind that is sold in the Shops, and used to anoint withal in Palsies and other nervous Cases. *Pomet.*

Of the KITE.

The Fat of the Kite is applied in Pains of the Joints. *Dale.*

Of the SPARROW-HAWK.

The Fat of the Sparrow-hawk is good in Disorders of the Eyes, and all Diseases of the Skin. *Dale.*

Of the OWL.

The Fat of the Owl, either white or gray, sharpens the Sight. *Dale.*

Of the CRANE.

The Fat of the Crane, instilled into the Ears, cures Deafness. It mollifies hard Tumors of the Spleen, and other Parts of the Body. It also immediately relieves Stiffness of the Neck. *Dale.*

Of the STORK.

The Fat of the Stork is good in gouty Complaints, and for Limbs that tremble and are unsteady. *Dale.*

OF THE FAT OF FISH.

The Fat of River-fish melted in the Sun, and mixed with Honey, clears the Sight, if the Eyes are anointed with it. *Dioscorides.*

Of the PIKE.

The Fat of the Pike is used as an Ointment to the Soles of the Foot,

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Foot, and Breasts of Children, in order to cure their Catarrhs and Coughs. *Dale.*

The CARP.

The Fat of a Carp is of Service in hot Disorders of the Nerves or Tendons, *Dale.*

Of the DARE.

The Fat of the Dare is good for Pains in the Ears, and Dimness of Sight, mixed with the Gall of the same Fish. *Dale.*

Of the GRAYLING.

The Fat of the Grayling wears away Specks and Films from the Eyes. Melted in the Sun and mixed with Honey it takes away Spots of the Skin, and Marks left by the small Pox. *Dale.*

Of the TROUT.

The Fat of the Trout is good for the Piles, and Fissures of the Anus. *Dale.*

Of the DOLPHIN.

The Fat of the Dolphin, melted and drank with Wine, cures the Dropsy. *Pliny. Dale.*

The Method of preparing Fat for Use is thus laid down by the Compiler of the *Edinburgh Dispensatory*:

The Fat, being first purged of its Membranes, Blood-vessels, and Strings, is to be washed in fresh Parcels of Water, till it will no longer tinge the same red; then let it be melted, strained, and preserved from the Injuries of the Air.

The Antients were more curious, and took greater Pains in preparing their Fat, as may be seen by the following Directions from *Dioscorides*.

Of the Fat of HENS or GEESE.

The Fat of a Hen or Goose, either new, or kept without Salt, is good in Diseases of the Womb; but salted, or grown acrimonious with keeping, is hurtful to that Part. Take the fresh Fat of either of these Kinds, and, stripping it of the Membranes, put it into a new earthen Pot, that will hold double the Quantity you design to preserve. Expose the Pot carefully closed to the burning Sun, and let the Fat, as it melts, fall through a Strainer into another earthen Pot, till all be run off. Then remove it into a very cool Place, and let it stand for Use. Some, instead of the Sun, place the Pot over hot Water, or Coals that give a very gentle Heat. There is yet another Way of curing it. They take the Fat, and, clearing it from the Membranes, beat it, and put it into a Pot, where it is melted, with a little fine Salt cast therein. Then they strain it thro' a Linnen Rag, and place it aside. This Sort is an useful Ingredient in Remedies provided against Lassitudes. *Dioscorides, L. 2. C. 86.*

Of the Fat of BEARS and SWINE.

The Fat of Bears and Swine is prepared after this Manner: Take the newest and grossest, such as grows about the Kidnies, and, stripping it of the Membranes, throw it into a good Quantity of Rain-water, perfectly cool; then break it, and rub it carefully with your Hands, as though you would reduce it all to Crumbles. Then wash it in several fresh Waters, and afterwards put it into an earthen Pot, that will hold double the Quantity. Pour in as much Water as will cover the Fat, and set it over a gentle Fire, and stir it with a Spatula. When it is thoroughly melted, pass it through a Strainer into Water, and let it cool. Let the Water drop clean away, and then shift it into another Pot, first washed, and, pouring in some Water, give it a gentle Melting. This done, take it off, and, having let it stand a little for the Dregs to subside, pour it into a Mortar first wiped with a Sponge. When it is congealed, take it out, and, first cleaning it from the Dregs residing at the Bottom, give it a third Melting without Water. Then pour it back into the Mortar, from whence, being well purged of all Feculencies, remove it into an earthen Pot, and place it aside well covered in a cool Place for Use. *Dioscorides, L. 2. C. 87.*

Of the Fat of GOATS, SHEEP, and DEER.

The Fat of these Animals is thus prepared: Take either of them, wash it, clear it of the Membranes, and put it into a Mortar to be softened. Beat it, pouring in now and then a little Water, till nothing bloody rises to the Surface, or Greasiness swims at the Top, but all looks clear and shining. Then put it into an earthen Pot, with Water just enough to cover it, and set it over a gentle Fire, stirring it. When it is thoroughly melted, pour it into Water, and, after it is congealed, melt it over again in an earthen Pot first washed, and proceed as in the former Chapter. After the third Melting, which is without Water, strain it into the Mortar first moistened, and, when it is congealed, remove it into your Pot, and lodge it as was directed for Swines Fat. *Dioscorides, L. 2. C. 88.*

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Of the Fat of OXEN.

This Fat is also to be chosen from the Kidnies, stripped of its Membranes, and then washed in Sea-water. After this, it must be put into a Mortar, and carefully beaten with Sea-water. When all is dissolved, pour it into an earthen Pot, with Sea-water enough to rise a Span above it, and boil it till it has lost its proper Smell. Then for every Pound of Fat cast in four Drams of Tyrrhene Wax, and strain it off. Next (after it is congealed) take away the Dregs that settled at the Bottom, and put it in a new earthen Pot, which is to stand covered every Day in the Sun, till the Fat has lost its rank Smell, and acquired a Whiteness. *Dioscorides, Lib. 2. C. 89.*

Of the Fat of BULLS, PANTHERS, and LIONS.

The Fat of Bulls is thus prepared: Taken fresh from the Kidnies, it is washed in running Water, then stripped from the Membranes, put in an earthen Pot, and melted with a little Salt cast therein. After this they strain it off into fair Water, and, when it begins to congeal, they take and rub it well with their Hands in several fresh Waters till it be thoroughly washed. Then they clap it into the Pot again, and boil it with an equal Measure of sweet-scented Wine. After it has boiled up twice, the Pot is taken off the Fire, and left to stand all Night. The next Day, if any Rankness of Smell remains, it is removed into a new Pot, has more sweet-scented Wine poured upon it, and is treated as before; till all the ill Savour be vanished. Some melt it without Salt, especially for some Diseases, in which Salt is accounted hurtful; but, thus prepared, it will acquire no considerable Whiteness. After the same Manner is prepared the Fat of Panthers, Lions, Wild Boars, Camels, Horses, and the like. *Dioscorides, L. 2. C. 90.*

ADEPTA PHILOSOPHIA. *Adept Philosophy.* It is generally understood of that Philosophy, whose End is the Transmutation of Metals, and the universal Remedy. The *Adept Philosophy* is represented by Paracelsus as one taught by Inspiration from Heaven, and which cannot be communicated from Man to Man, though in other Places he tells it may be learned from those who are *Adepts*. Both he and Helmont have taken much Pains to inform us what it is not, but have not been so obliging as to explain what it is. The Professors of this Philosophy in the Clouds are called *ADEPTI, Adepts*.

Paracelsus calls that *Adept Medicine, MEDICINA ADEPTA*, which treats of those Diseases only, which are contracted by celestial Operations, or communicated from Heaven.

Those, whose Curiosity may incite them to know more of this Philosophy, may consult Paracelsus's Treatise, *de Occulta Philosophia, L. 1. C. 8.* But I will not be answerable that they shall meet with satisfactory Information.

ADER. Rulandus explains this by *Lac recens sine Butyro*. I suppose he means either new Milk before it is creamed over, or else fresh Butter-milk.

ADHÆRENTIA. ADHERENCE, growing together. *Castellus.*

ADHATODA. The Malabar Nut.

The CHARACTERS are,

The Leaves grow opposite; the Cup of the Flower is oblong, and consists of one Leaf; the Flower is monopetalous, of an anomalous Figure, and consists of two Lips; the uppermost is crooked, and is raised in Form of an Arch; the under Lip is divided into three Segments, and hangs downward; the Ovarium becomes the Fruit, which is in Form of a Club, and is divided into two Cells, in which are contained flat Heart-shaped Seeds.

There are but two Species of this Plant known at present, which are:

1. *Adhatoda Zeylanensis*, H. L. The common Malabar Nut.
2. *Adhatoda Indica*; *folio saligno, flore albo*, Boerh. The Willow-leaved Malabar Nut, commonly called, *The Snap-tree*. *Miller's Dictionary.*

Its Virtue is to expel the dead Fœtus, that being the Meaning of *Adhatoda* in the Zeylanic Language.

ADHEHE. Sour Milk. Butter-milk. *Rulandus.*

ADHO, or **ADOC.** Milk. *Rulandus.*

ADIACHYTOS, *Ἀδιάχυτος*. From a Negative, and *διαχύνω*, to diffuse, scatter, or be profuse. Decent in Point of Dress, or Habit. Hippocrates makes Use of this Word in his Treatise, *de decenti Habitu*. This great Man esteemed the Dress of a Physician of Importance enough, to take the Trouble of giving some Advice upon this Head. He thinks the Character of a Fop derogatory from the Honour of a real Physician; and describes a Set of Practitioners in his Days, who attempted to supply the Defects of Knowledge in their Profession, by Ornaments of Dress. These, he says, frequented the public Places, in order to deceive People by their Appearance into a good Opinion of them, and this for the Sake of Gain. He adds, that they may be known by their Dress, and that the greater their Extravagance is in this Respect, the more they are to be avoided, and despised, by those that see them.

ADIAN-

ADIANTHUM. Maiden-hair.

The Account Dioscorides gives of it is as follows :

Adiantum, by some called *Polytrichon*, has Leaves like the Coriander, indented at the Top, and growing on very slender, black, shining Stalks, a Span high:

The Decoction of the Herb, drank, helps Difficulty of Breathing, and the Asthma, Disorders of the Spleen, Difficulty of Urine, and the yellow Jaundice. It breaks the Stone, binds the Belly, and relieves those who are bitten by venomous Creatures. It is drank in Wine for Weakness of the Stomach. It provokes the Menfes, and the Lochia, but stops Vomiting or Casting up of Blood. It is applied in a Cataplasm against venomous Bites, to make Hair grow where lost, and to disperse scrophulous Tumors. A Lye made thereof cleanses scald and scabby Heads. Applied with Ladanum, Myrsinnum, and Oil of Lillies, or, with greasy Wool and Wine, it puts a Stop to the Shedding of Hair, and strengthens what is left. The Decoction thereof, with the Lyes and Wine, produceth the same Effect. Given to Cocks and Quails among their Food, it incites them to fight. It is planted about Sheep-folds for the Benefit of the Sheep; and grows also in shady and marshy Places, on old mouldering Walls, and near Springs. L. 4. C. 136.

The Moderns have given the Name of *Adiantum* to many capillary Plants. The first is thus distinguished by Authors:

1. *Adiantum vulgare*, *Capillus Veneris*, Offic. *Adiantum*, Cod. Med. 1111. *Adiantum*, *sive Capillus Veneris*, J. B. 3. 751. Raii Hist. 1. 147. *Adiantum*, *Capillus Veneris*, Chab. 555. *Adiantum verum*, *sive Capillus Veneris verus*, Park. 1049. *Adiantum foliis Coriandri*, C. B. 355. Tourn. Inst. 543. Elem. Bot. 433. Hist. Oxon. 3. 587. *Capillus Veneris verus*, Ger. 982. Emac. 1143. TRUE MAIDEN-HAIR.

ADIANTHUM VULGARE. This is a capillary Plant, which, from a brownish, stringy Root, sends forth black shining slender Stalks, near a Foot high, divided into several very fine Branches, on which grow small, very thin Leaves, roundish, in Shape of Coriander-leaves, set on alternately on the Stalks; on the Edges of the Leaves, when the Plant is come to its full Growth, are several small Folds, under which is contained a small Dust, which is the Seed.

This Maiden-hair is brought to us from the Southern Parts of France, though it is said to grow plentifully in the County of Cornwall.

This being the true *Capillus Veneris*, is what ought to be used in making the Syrup of Maiden-hair, and every where else, where the true is prescribed. But for Want of it, it not being to be had in any Quantity, we generally use the *Trichomanes*.

This Maiden-hair is opening and attenuating, good for Distempers of the Lungs and Breast, as Coughs, Shortness of Breath, Hoarseness, and the like; it is also accounted serviceable against the Stone and Gravel, Heat and Difficulty of Urine. The only officinal Preparation is the Syrup. *Miller*.

Adiantum, or the true Maiden-hair of the Shops, is a Plant that bears several slender, blackish Stalks, of about half a Foot or a Foot high, divided into fine delicate Branches, which are adorned with little Leaves, like those of Coriander, almost triangular, fragrant, and of an agreeable Taste: This Plant bears no Flowers; its Fruit, according to Mr. Tournefort's Observations, is produced in a Folding of the End of one of the Leaves, which, after it is stretched out, incloses several spherical Coverings, which are caked to the said Foldings, and cannot be discovered but by the Assistance of a Microscope. These Capsulae, or Coverings, are furnished with, as it were, a Purse-string, which, by its Contraction, opens it; they contain some little Seeds in them that are almost round: The Root is fibrous and black; it grows in shady, moist, or stony Places, against Walls, or Sides of Wells and Ditches: The best they have in France, grows about Montpellier in Languedoc. *Lemery*.

The Leaves of the true Maiden-hair are much used. They are said to purify the Blood, by reducing the Humours mixed in the Mass thereof to a just Temper. It prepares and purges Phlegm, and the Bile of both Sorts, that is, the Bile, properly so called, and what the Antients called the *Atra Bilis*. It dissipates Superfluities, resolves serous Humours, and carries them off by Transpiration. It provokes Urine and Sweat, and powerfully resists Putrefaction; hence it is given with Success in all Sorts of Fevers.

It is specifically adapted to cure all Disorders to which the Hair is subject. Thus it is a Remedy against Baldness, clears the Hair of Scurf and Filth, restores that which is decayed to its former Lustre and Beauty, prevents its falling off, and preserves it from growing grey.

It excites all the Faculties of the Brain, tempers any Excess in the Humours deposited upon it, and corrects in them what is amiss. It therefore depurates the animal Spirits, restrains hot and bilious Vapours, and renders those mild, which are inclinable to be acrid, acid, or narcotic. It is on these Accounts admirable in Want of Rest, comatous Disorders, Epilepsies, Phrensies, Madness, Melancholy, Head-ach, and all Disorders,

and Tumors, which happen to any Part of the Head. It sharpens the Sight, and restrains and dissipates all habitual Fluxes of Humours upon the Teeth, Ears, and Glands of the Neck and Fauces. By its agreeable Odour it exhilarates the Heart, and strengthens the vital Faculties. It is good in Disorders of the Breast, purges the Lungs, inciding and evacuating thick and viscid Humours, which stick to the Sides of the Branches of the Aspera Arteria. Hence it becomes an effectual Remedy against a Cough, Difficulty of breathing, Asthma, Peripneumony, Pleurisy, Spitting of Blood, fainting Fits, and Heart-burn.

It braces up, and restores a proper Tone to the relaxed Fibres of the Oesophagus and Stomach. It purges off Collections of the Excrements, which cause Nauseas, or Inclinations to Vomit. It quenches Thirst, and penetrates, moistens, and purges very gently the Stomach and Intestines. It cools the Liver and Spleen, and opens Obstructions formed therein, let them be never so inveterate. It wears away the Stone in the Kidnies or Bladder, and opens the urinary Passages. It is both a Preservative against, and a Cure for the Jaundice and Green-Sickness. It is particularly useful to the Parts of Generation. Thus it prevents Sterility, expels Immundities, and the Secundines out of the Womb, promotes the Menfes, if deficient, and restrains them, if immoderate, as it does the Fluor Albus. It is of Service in Disorders of the Joints, and nervous System, and cures Stupors, Spasms, and Pandalinations, and windy Affections of the Muscles. It softens and resolves hard Concretions formed upon the Ligaments of the Joints, and, for this Reason, is serviceable in ischiadic Pains, and the Gout. It is also good against Tumors of all Sorts, whether hot or cold, oedematous, scirrhus, inflammatory, or erysipelatous. It is also good in Wounds, Ulcers, Fractures, Luxations, and all Disorders of the Skin. *Ray* from *Petrus Formius*.

This is a very great Character of a Plant, and perhaps stretched a little too far; but we may learn from hence, that it has been esteemed as a great Deobstruent, and excellent Alterative. And if we consider that most of the capillary Plants abound with a neutral, saponaceous Salt, which approaches to the Nature of Nitre, we may the easier believe that the *ADIANTHUM* may be possessed of great Virtues, in all Disorders where Obstructions are either the Cause, or the Effect. But then it must be taken in considerable Quantities, and those frequently repeated, and the Course must be persisted in for a long Time.

The best Way of taking it is in very strong Decoctions, or Infusions.

Mr. *Ray* observes, that because this Plant is temperate, in regard to all its Qualities, he is inclinable to believe the Virtues of it weak and inconsiderable. But we now know that the alterative and deobstruent Virtues of Simples, by no Means, depend on the Excess of any of their sensible Qualities, and therefore nothing can be concluded from this.

Somewhat like this, in Figure and Virtues, is the *ADIANTHUM CANADENSE*, Maidenhair of Canada, much used by the French, and thus distinguished:

Adiantum Canadense, *vel Capillus Veneris Canadensis*, Cod. Med. 4. *Adiantum Americanum*, Corn. 7. Raii Hist. 1. 148. Fill. Hort. Pis. 3. Tourn. Inst. 543. Elem. Bot. 433. Boerh. Ind. A. 26. *Adiantum fruticosum Americanum*, Park. Theat. 1049. *Adiantum fruticosum Brasiliense*, C. B. Prod. 150. Pin. 355. Chomel. 83. *Adiantum fruticosum Americanum, summi ramulis reflexis, & in orbem expansis*, Pluk. Phytog. 124. Almag. 10. Hist. Oxon. 3. 588. CANADA, or AMERICAN MAIDEN-HAIR. *Dale*.

The Capillaries, or Maiden-hair, are little Plants that are brought intirely whole to us from several Parts; the chief and most esteemed are those which come from Canada, and are called *Maiden-hair of Canada*, and by the Botanists, *Adiantum album Canadense*, or the white Canada Maiden-hair. This grows about a Foot high, with a very slender Stalk, hard and blackish; from whence there arise small Branches, bearing green Leaves, pretty deep indented, as may be seen by the Figure. It grows likewise in Brasil. This is cultivated with great Care in the King's Garden at Paris, as well as other Sorts of exotic Plants, which are brought from several Parts of the World, by Messieurs Fagon and Tournefort, the King of France's principal Physicians.

The other Capillaries that are brought from Canada, are made Use of for Syrups, which are boiled to a good Consistence, and have Ambergreese added to them. There are many Virtues attributed to this Syrup, especially for Coughs, Catarrhs, Diseases of the Breast, and to administer to Infants new born, with a little Oil of sweet Almonds. As to the Choice of Maiden-hair, you must take such as is newest, very green, and the least broke that you can get. *Pomet*.

In Canada, Brasil, and several other Parts of America, there is a Sort of the dried Maidenhair, a great Deal larger than ours, called by C. Bauhine, *Adiantum fruticosum Brasiliense*, and is the same with the Maidenhair of Canada: The Stalk is slender, hard, and of a brownish Red, or purple Colour, tending to black, divided into many Branches, which bear little Leaves, almost like the common Sort, long, and indented on one Side, but

but whole on the other, soft, tender and fragrant; this is what is most valued, as being the best scented of all the Maiden-hairs. It is common in several Parts of America, and especially in Canada; so that the Traders pack up their Goods with it, instead of Hay, when they would send them to a distant Country. It is by this Means we have such Quantities of it; but it would be much better if they would pack it up in Papers or Bags, that would preserve the Scent and Virtue of it. Chuse such as is fresh, green, well scented, whole and soft to the Touch. This Plant contains little Phlegm, a good deal of Oil, but not much Salt; it is pectoral, aperitive, and promotes Expectoration, sweetens the Blood, and provokes the Menfes. *Lemery.*

The next Plant, called *Adiantum* by Botanists, is the Wall-Rue, thus distinguished.

ADIANTHUM. Maiden-hair.

ADIANTHUM ALBUM, *Ruta muraria*, *Salvia vitæ*, Offic. *Adiantum album*, Raii Hist. I. 146. Synop. 48. *Adiantum album montanum*, Herm. Hort. Lugd. Bat. 10. *Ruta muraria*, C. B. 356. Tourn. Inst. 541. Elem. Bot. 433. J. B. III. 753. Chab. 555. Boerh. Ind. A. 26. *Ruta muraria sive Salvia Vitæ*, Park. 1050. Ger. 983. Emac. 1144. WALL RUE, or RUE MAIDEN-HAIR. *Filicula petraea Rutæ facie*, Hist. Oxon. iii. 585. *Muraria semper virens vulgaris*, Dill. Cat. 73. TRUE WHITE MAIDEN-HAIR. *Dale.*

This is a small low Plant, growing seldom above two or three Inches high, its slender Stalks being of a whitish Colour, whereon grow a few small roundish, stiff Leaves, resembling those of Rue, crenated a little about the Edges, of a whitish green Colour above, covered underneath, when come to its full Growth, with brown dusty Seed. It grows on old Stone Walls and Buildings, its little fibrous Root abiding several Years.

This is one of the five Capillary Herbs mentioned in the *Dispensatory*, and has the same Virtues with the rest of the Maiden-hairs, and is sometimes used in pectoral Decoctions, and diuretic Apozems.

This is the Herb that has been taken for the Hyssop of Solomon. It grows on Walls in hot Countries, and is of wonderful Virtue in curing Disorders of the Breast. It tastes like sweet Oil, and cures a stinking Breath. Bruised with warm Water and Honey, it helps the Asthma and other Distempers of the Breast; it provokes Urine, expels Gravel, and is good in the Asthma and Pleurisy. *Boerhaave.*

The third is the *Adiantum nigrum*, Offic. *Adiantum nigrum Officinatum*, J. B. iii. 742. Raii Hist. i. 152. Synop. 50. *Adiantum nigrum vulgare*, Park. 1049. *Adiantum foliis longioribus pulverulentis, pediculo nigro*, C. B. 355. Hist. Oxon. iii. 588. Boerh. Ind. A. 26. *Onopteris mas*, Ger. 975. Emac. 1137. *Filicula quæ Adiantum nigrum Officinatum*, El. Bot. 432. *Filicula quæ Adiantum nigrum Officinatum, pinnulis obtusioribus & acutioribus*, T. Inst. 542. Buxb. 113. COMMON BLACK MAIDEN-HAIR.

This Maiden-hair grows about a Span high, its slender Stalks being smooth and black, divided into many Segments, of small, firm, shining, green Leaves, notched pretty deep, and sharp pointed, growing on little Branches, sometimes two opposite together, and sometimes alternately to the Number of twelve or fourteen Pair, the Top ending like a Fern; the Backs of the Leaves have the Margin covered with a brown dusty Seed. The Root is pretty large and fibrous.

It grows in shady Lanes, and at the Roots of Trees.

This also is one of the five capillary Herbs, and its Virtues the same with common Maiden-hair; and is accordingly used for Coughs, and all Affections of the Lungs, and Diseases of the Kidneys; some commend it for the Jaundice.

The fourth is the *Adiantum aureum*, & *Polytrichum aureum*, Offic. *Adiantum aureum majus*, Raii Hist. i. 123. Synop. 28. Cat. Angl. vii. 123. *Polytrichum aureum majus*, C. B. 356. Park. 1051. *Polyt. Apuleii*, & *majus quibusdam*, J. B. iii. 760. *Polytrichum Apuleii majus*, Chab. 558. *Polytrichum vulgare & majus capsula quadrangulari*, Dill. Cat. 221. *Muscus saxatilis, aut sylvestris Trago*, El. Bot. 439. *Muscus capillaceus major, pediculo & capitulo crassioribus*, T. Inst. 550. Bux. 219. *Aureus capillaris medius*, Herm. Hort. Lugd. Bat. 431. *Muscus coronatus major piloso villosus aureo*, Hist. Oxon. iii. 630. Boerh. Ind. A. 21. *Muscus capillaris, seu Adiantum aureum*, Ger. 1371. *Muscus capillaris, seu Adiantum aureum majus*, Ger. Emac. 1559. GOLDEN MAIDEN-HAIR. *Dale.*

This is a large kind of Moss, with a Stalk three or four Inches high, whose lower Part is wholly covered with small, short, hard and stiff brown Leaves; the upper Part is quite bare to the Top, on which grows a long roundish Head, or Seed-vessel, covered with a woolly, sharp-pointed, reddish yellow Cap, which falls off as the Head grows ripe; the Root is small and stringy. It grows in heathy, barren and boggy Ground, and frequently on old Ant-hills.

This is one of the five capillary Herbs, though it is but rarely used. Some Authors attribute as much Virtue to this, as to the former Maiden-hairs; besides which, it is said to be

very good to prevent the falling of the Hair, and to make it grow thick, being boiled in Water or Lye, and the Head washed with it. *Dale* says the Decoction is commended for the Pleurisy. *Miller.*

ADIAPHOROS. 'Αδιάφορος. From α Negative, and διαφέρω, to differ. Indifferent, or without Difference. *Constantine.*

It is sometimes applied to Foods.

ADIAPNEUSTIA. 'Αδιανυστία. From α Negative, and διαπνέω, to perspire. It is a Symptom arising from the Density of the Pores, when Perspiration is deficient. It is mentioned by Galen. lib. xi. *Meth. Med.* *Gorræus.*

It signifies nothing more than a Stoppage of Perspiration, the Cause or Consequence of all Distempers, whether acute or chronic.

ADIAPTOTOS. 'Αδιάπτωτος. From α Negative, and διαπίπτω, to stumble, or slide. The Word signifies firm; but in Medicine it is the Name of a Remedy against the Colic, which Galen, lib. ix. τῶν κατὰ τόπους, says consists of these Ingredients, viz. Stone Parsley, the Seed of Henbane, white Pepper, of each forty Drams; Juice of Poppies twenty Drams; Saffron six Drams; Opobalsamum three Drams; made into an Electuary. It seems to take its Name from its prevailing Virtue in all Inflammations. *Gorræus.*

ADIARRHŒA. 'Αδιάρρηια. From α Negative, and διαρρέω, to flow out, or through. It signifies an intire Suppression of all the necessary Evacuations of the Body, and Retention of the Humours which ought to be discharged. *Forsius.*

ADIB. A Beast mentioned by Avicenna, which Castellus takes for the Wolf.

ADIBAT. Mercury, in the Alchymistical Jargon. *Rulandus. Johnson.*

ADIBISI, or ADIBIZI. *Tesudo*, a Tortoise. The German Word which Rulandus explains it by, signifies a *Snail*. *Rulandus.*

ADIDACUS. Rulandus calls this **ADIDE ALARCHIOS**; **ADIDA LARCHOS**, id est, **CALCECUMENON**. Johnson, the literal Transcriber of Rulandus, and Castellus, have both prudently omitted taking notice of this Word, and many more of the most difficult, because I suppose they could not explain them. As I have not met with the Word in any Author, except Rulandus, I can only explain it in his Words, which I confess I do not know what to make of.

ADJECTIO. The same as **ADDITIO**, the adding of any thing that is deficient. *Castellus.*

ADICE. 'Αδίκη. The Nettle is sometimes called by this Name. *Gorræus.*

ADIPSATHEON. This is, according to Pliny, a thorny Shrub, growing in the Islands of Nigros, and Rhodes. *Pliny*, l. xxiv. c. 13.

ADIPOSA MEMBRANA. See **CELLULOSA MEMBRANA** and **ADEPS**.

ADIPSON. 'Αδιψον. From α Negative, and διψω Thirst.

Hippocrates, in his *Treatise de Ratione Virtus in Acutis*, says the Pissana, by its Glutinousness, is (αδιψον) Adipson, that is, a Preventer, or Curer of Thirst; and in this Treatise he applies the same Word to Oxymel, meaning that it quenches Thirst.

Medicines were so called, because they prevented or allayed Thirst, whether drank, or in a Linctus, or Gargasilin; and the Name may be applied even to such Medicines as simply do not provoke Thirst. Now because Dryness is the principal Cause of Thirst, it is plain that what quenches Thirst must be moist; and if it be cold besides, it is by so much the more effectual; for Coldness preserves the Moisture, which Heat would consume. However many hot things are effectual in allaying Thirst, as Liquorice and Pepper in some, if held in the Mouth; the first because of its moist and clammy Juice, the other by its drawing Phlegm from the Head into the Mouth and Jaws. Of the same Virtue are cooling Potions and Eclegms, many of which are described by Galen, lib. τῶν κατὰ τόπους.

ADIPSOS. 'Αδιψος. The Egyptian Palm. It is a great Tree, not straight but wreathed, green, smelling like a Quince-tree, with a Leaf like Myrtle, Fruit like Capers, not good to eat, but of a pleasant Smell, not at all ligneous. The Fruit, a little before it is ripe, is called μυροβάλανος [a Myrobalan] when ripe and blackish φεικοβάλανος. Theophrastus calls this Tree βάλανος, that is, *Mast*, from its Fruit; but it is called αδιψος, because its Fruit, gathered before it is ripe, and tasted, restrains Thirst; or because, as Solinus relates, a Drink is made of its cool, sour and astringent Juice, which quenches like what is made of our Pears, Apples, and the Fruit of the Service-tree.

ADIPSOS is also Liquorice; so called by Theophrastus, Dioscorides and Pliny, because with the sweet and clammy Juice of its Root it satisfies both Hunger and Thirst. Wherefore it was often given to hydropical Persons to prevent their Thirst.

ADIPSOS is also the Name of a Catapodium, or Pill, composed by Asclepiades as follows:

A D O

Take of the Seeds of Garden Cucumber and Purslane, each eight Drams, Gum-Tragacanth three Drams; dissolve the Tragacanth in the Whites of new-laid Eggs, and add it to the other Ingredients, which must be finely powdered, and all mixed together, and made up in the Form of Pills. Dry them in the Shade, and let the Patient hold one of them under his Tongue, and suck up the Liquor that comes from it. Galen mentions it, *lib. viii. τῶν κατὰ τόπους. Gorræus.*

ADIRIGÉ. Rulandus explains this by Armoniacum. I suppose he means the Salt, that being of more general chymical Use than the Gum Ammoniacum, is frequently called by Mistake Armoniacum.

ADJUTORIUM. The Bone of the Arm, called usually the Humerus. *Castellus, from Johannes Anglicus, and Vesalius.*

ADJUTORIUM also sometimes signifies a topical or external Remedy, applied to a Part affected, in Aid of internal Medicines. *Castellus from Theodorus Priscianus.*

ADJUVANTIA. Medicines are so called, which aid and assist Nature in the Cure of Distempers.

ADIYLISTOS. Ἀδύλιστος. From α Negative, and δύλιζω, to strain, or defecate. Wine not fined clear from the Dregs, or not passed through the Strainer, which was the usual Method of managing such Wines as were kept in order to improve their Taste; and was sometimes practised on others to lower their Strength, and make them milder and fitter for drinking. *Gorræus.*

ADMIRABILIS. An hyperbolical Epithet given by many of the Chymists to particular Preparations of their Invention. It is generally applied to factitious medicinal Stones, of which there are many. Lemery says, that which he describes is by much the best.

Powder and mix together of white Vitriol eighteen Ounces, of fine Sugar and Nitre each nine Ounces; of Alum two Ounces; of Sal Ammoniac six Drams; of Camphire half an Ounce. Put this Mixture into a glazed earthen Pot, moisten it to the Consistence of Honey with the Pickle of Olives. Put the Pot over a gentle Fire, and dry the Mixture leisurely till it acquires the Consistence of a Stone. Keep it close covered, because it otherwise readily attracts Moisture from the Air.

This Stone is deterfive, vulnerary, and astringent. It resists Gangrenes, stops Hæmorrhages, either dry or dissolved; it is used in Collyria for Cataracts of the Eyes, is applied to scorbutic Ulcers, and is an Ingredient in Injections for Gonorrhœas.

Great Care must be taken, during the Operation, to moderate the Fire, otherwise the Camphire, by Reason of its Volatility, exhales. But with all the Care that can be taken, a great Part of the Camphire will be dissipated; for which Reason a little Camphire may be added to it when it is used. *Lemery Cours de Chymie.*

Castellus quotes a Lapis Admirabilis from Junken.

ADMISURAB. Earth. *Rulandus.*

ADNATA TUNICA. A Coat of the Eye, called also **CONJUNCTIVA**, and **ALBUGINEA**. It is that which makes the White of the Eye. It is formed by the tendinous Expansions of the Muscles which move the Eye. This Coat covers the whole Ball of the Eye, except the Fore-part, which is called the Sight, but is not numbered amongst the proper Tunicks of the Eye. It is extremely sensible and abounds with Veins and Arteries, which are very visible in Inflammations of the Eyes. *Winflow, Drake, Keil.*

It covers so much of the Eye as is called the White, and being reflected all round, it lines the two Eye-lids; it being thus returned from the Eye to the Inside of the Eye-lids, it effectually hinders any extraneous Bodies from getting behind the Eye into the Orbit, and smooths the Parts it covers, which makes the Friction less betwixt the Eye and the Eye-lids. *Chefelden.*

ADNATA, or **ADNASCENTIA**, are those Off-sets, which, by a new Germination under the Earth, proceed from the Lilly, Hyacinth, Narcissus, &c. which afterwards grow to true Roots; which the French call *Cayens*. *Miller.*

ADNATA also signifies things that grow upon animal or vegetable Bodies, which are either inseparable from them, as Wool, Hair, Horns, and Fruits; or else accidental, as Fungus, Mistleto, and Excrecences. *Galen.*

It is sometimes spelt **AGNATA**.

Apoc. Milk. *Rulandus.*

ADOLESCENS. The Iron Bars that support the Fire in a Grate, or Furnace. This is the Signification of the German Word, by which Rulandus explains it; but I do not know by what Analogy Iron Bars are so called. The German Word is **GRENDER**, which will bear another Signification. Paracelsus, amongst other Extravagances, had an Inclination to produce a Man without the Assistance of a Female, probably with a View of rendering that Sex useless, for which he had no great Com-

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plaisance. His Disciples say he actually did produce something in the Shape of a little Man, by digesting Semen Masculinum inclosed in a Glass Vessel in a Dunghil. This Production was called the Homunculus of Paracelsus, which Sense the German Word will bear, and this answers better to **ADOLESCENS**.

ADONION. Ἀδώνιον. Gorræus says this was a Species of Southernwood, which used to be set in Pots, and served as an Ornament for Gardens.

ADONIS FLOS. Pheasants-eye. Red Maithes.

The **CHARACTERS** are,

The Leaves are like Fennel, or Charnomile; the Flowers consist of many Leaves, which are expanded in Form of a Rose. The Seeds are collected into oblong Heads.

There are three Varieties of this Plant.

1. **ADONIS hortensis Flore minore atrorubente.** C. B. The common red Birds-eye. *Miller.*

This, Gerard says, is called, by the Herb-women in London, *Rose a Ruby.*

The Seed is thought to be good against the Stone. The Powder of the Seeds stamped given in Wine, wonderfully helps the Colic. *Gerard.*

The Flowers infused in Wine and drank, are found by Experience to relieve the Colic. *Ray from Parkinson.*

2. **ADONIS sylvestris, Flore luteo, Folis longioribus.** The long-leaved yellow Birds-eye. *Miller.*

This, Ray says, only differs from the former in the Colour of the Flower.

3. **ADONIS Hellebori Radice, Bupthalmi Flore.** The Hel-lebore-rooted Pheasants-eye, commonly called the Fennel-leaved black Hellebore.

This is used by the Germans in Medicine as the true Hellebore. *Miller.*

ADOR. A Sort of Corn called also **SPELTA**, and **ZEÄ**. See **SPELTA** and **ZEÄ**.

ADORAT. The Weight of four Pounds. *Rulandus.*

ADOS. Water wherein Iron has been extinguished. *Rulandus.*

ADPLUMBATUM. This is a Word used no where, that I know of, except by Scribonius Largus, 271. He directs a Sort of Acopum, there described, to be put into a Tin Vessel diligently covered, and (*adplumbato*) folded with Lead I suppose he means. Cato, in giving Directions for making an Olive Mill, or Press, uses the Word *circumplumbato* in much the same Sense.

ADRA RIZA. Blancard says the Root of the Aristolochia is thus called. I meet with the Word in no other Author.

ADRACHNE. The Strawberry Bay. It is thus distinguished by Authors.

ADRACHNE Officinarum, Park. Theat. 1490. Raii Hist. ii. 1577. *Adrachne Theophrasti*, Ger. Emac. 1602. J. B. 87. *Adrachne Theophrasti, Arbutus, seu Cernaro, proxime accedens*, Chab 4. *Arbutus Folio non Serrato*, C. B. Pin. 460. Pluk. Almag. 49. Jonst. Dendr. 65. Tourn. Cor. 41. *Arbutus Dioscoridis vera Cometa dicta*, Wheel. Itin. 452. **THE STRAWBERRY BAY.** Dale p. 312.

It grows plentifully in the Island of Candy, on the Hills of Leuce, and in other Places among the Rocks, more like a Shrub than a Tree. It is an Ever-green, and its Leaves are so much like Bay-leaves, that they are not to be distinguished but by holding them to your Nose; for the Leaf of the *Adrachne* has no Smell at all. The Bark of the Stem and all the Branches is so smooth, red, and shining, that they look like Branches of Coral. The Bark cleaves in Summer, and falls off in very thin Chips; at which time it loses its fine red and shining Colour, and takes up with a Sort of Medium betwixt a pale and an Ash Colour. It flowers and bears Fruit twice in the Year, as does the Arbutus Strawberry-tree, and their Fruits are so alike, that there is no Way of distinguishing them. But this Tree differs from the Arbutus Strawberry-tree, in that it grows only on Hills, nor has the serrated Leaf, nor the Bark of its Stem ragged. The Wood of the Tree is extremely hard, brittle, and inflexible.

It serves the Peasants for Fuel, and the Women for Whirls to their Distaffs.

Theophrastus reckons this Tree among such as are not killed by stripping them of their Bark, and are always green, preserving the Leaves on their Tops in Winter.

This Tree, in Crete, and all over Greece, is called Ἀδραχά, *Adracha*. *Bellus.*

Bellonius observed these Trees in many Places of his Travels, particularly in his Journey from Aleppo to Antioch, upon the Hills, but robbed of all their Fruit by his Fellow-travellers to eat on the Road; for it was ripe, and of a very inviting Colour. It grew in Clusters, and was of the Bigness and Colour of a Raspberry.

None who have read the Account of this Tree in Theophrastus can doubt that the Tree thus described by Bellus was the *Adrachne*.

drachme of that ancient Author, which is confirmed by the Name *Ἀδρακλά*, *Adracla*, by which the modern Greeks call it.

Ἀδράκη, *Adracne*, differs from *Ἀνδράκη*, *Andracne*, as Pliny would have us observe; for the latter is an Herb, by the Latins called *Portulaca* [Purslane] the other a Tree.

Mr. Wheeler observed this Tree in Achaia, near the Pentelican Hills, and saw some of the Fruit at Smyrna. *Ray*.

ADRAM. Sal Gemmæ. *Rulandus*.

ADRARAGI. Garden Saffron. Called also ALFAR, AFAN. *Rulandus*.

ADRARIGES. Green Ink. *Rulandus*.

ADRIANUS. We learn from Aurelius Victor, that the Emperor Adrian had some Knowledge in Physic. This Circumstance is of too much Importance for the Honour of the Profession to be omitted; though, upon the whole, the Art rather lost than got Reputation by this Prince, who died, as it is said, much out of Humour with Physic and Physicians, because he could not be cured of an habitual Hæmorrhage, which at last brought on a Dropsy, which occasioned him to kill himself, in order to avoid a lingering Death.

The Antidote which bears his Name has been said to be his Invention. It is thus prepared:

Take of Pepper, and Seed of white Henbane, each twenty Drains; of Opium ten Drains; of Saffron five Drains; of Spikenard, Euphorbium, Amomum, Pellitory of Spain, Cyperus, Cardamom, Malabathrum, or Indian Leaf, dried Leaves of Rue, Cassia, Castor, Seeds of Daucus, Myrrh, Parsley, of each one Dram; of dried Roses, and Seeds of Smallage, each a Dram and half; of Ginger, and Opopalsamum, each two Drains; Honey enough to make it into an Electuary.

The greatest Dose is the Quantity of a Hazel-nut, the least that of an Egyptian Bean. It is good for the Colic, taken in warm Water before Sleep; for Infirmities of the Stomach, and those who cannot retain their Food; it is given in Posca, [Vinegar, and Water]; for the Strangury, in warm Water; for spitting of Blood, in Posca; for the Dysentery, reduce it into Pills, and let the Patient take a little warm Posca after them. To consumptive People give it at Night in Hydromel; for a dry Cough take it in a Linctus with Honey; for the Bites of Spiders and Vipers, in Mulsam [Wine boiled with Honey]. It provokes the Menstrues, taken in Mulsam in which Pennyroyal, or Calamint, or Rue hath been boiled. *Actius Tetr. 4. Serm. i. cap. 108*.

ADROP. *Rulandus* does not give much Information in his Explication of this Word, which he calls AZAR, LAPIS IPSE, AZANE.

Ripley calls it UZIFUR, or PLUMBUM RUBEUM. *Theatrum Chym. Vol. ii. p. 114*. By this he means the Mixture of the Philosophers-Stone, or the Substance whence that is to be procured, as appears by a parallel Passage of an anonymous Author in the same Collection, Vol. iv. p. 474. *Castellus* is mistaken when he explains it Lead; for Lead, in the alchymistical Sense, is Antimony, as the Luna Philosophorum is the Regulus of Antimony; and thus *Adrop* is to be understood in David Lagneus, *Theatrum Chymicum*, Vol. iv. p. 726, who, from Arnoldus, interprets *Adrop*, Saturnus, that is, Antimony, the Matrix of the Philosophers-Stone.

ADROBOLON. *Ἀδρόβωλον*. From *ἄδρος* large, and *βῶλος*, a Glebe, Bole, or Mass. The Indian Bdellium, which is a coarser Sort than the Arabian, being impure, black, and in larger Lumps. *Constantine, Gorraeus*.

ADROS. *Ἀδρός*. Plump, of a good Habit, adult; in this last Sense it is used by Hippocrates, *Lib. de Genitura*. Hence *ἄδρως*, plentifully, mentioned by the same Author, speaking of purging melancholy Patients.

ADROS is also applied to the Pulse, when it is ample and full, and the Artery is greatly distended in all its Dimensions. *Gorraeus*.

AIDSAMAR. Urine. *Rulandus*.

ADSELLARE. This Word is peculiar to Vegetius; for I do not know that it is used by any other Author. It signifies literally to go to stool. He mentions it *l. iii. c. 45*, and in some other Places.

Castellus quotes it from the *Rei Rusticæ Scriptores*.

ADSTRICTIO. ADSTRICTION. It either signifies the Retention of any natural Evacuation by the Rigidity of the respective Emisseries, and is usually in this Sense applied to the Pores of the Skin, and intestinal Excretion, or is used to express the styptic Quality of Medicines.

ADSTRINGENS. ASTRINGENT. Styptic. See STYPTICA.

ADULTERATIO. Adulteration of Medicines, or counterfeiting those which are genuine by something like them in Appearance, though not in Efficacy. This has been complained of in all Ages; but is at present become a Trade so common, that unless the Legislature finds some effectual Method of putting an End to it, half Mankind will be destroyed, and the Profession of Physic rendered utterly useless; for Physicians may prescribe with great Judgment, and Apothecaries may admini-

ster with an equal Degree of Honesty, and yet the Abilities of one, and Diligence of the other, will be rendered even prejudicial to the Patient, if the Medicine, designed as a Relief, is so artfully adulterated as not to be discovered unless by the Effects, which I know is too often the Case.

I am sensible that no good Effect upon those who are guilty of Adulterations can be expected from any thing I may say; for they who can reconcile themselves to Robbery and Murder, which is the Consequence of Adulteration in a heinous Degree, are too abandoned to be reasoned out of their Iniquity.

In the Course of this Work, I shall do all in my Power to discover these egregious Cheats, by laying open the usual Methods of Adulteration, and specifying the Marks of genuine Medicines, and the Ways of knowing those that are counterfeited.

ADULTERIUM. Paracelsus, in his enthusiastical Way, has made a figurative Marriage betwixt the sensitive Soul, which he treats as the Husband, and the Body, which, in his Sense, is the Wife. Hence he calls overloading the Body with Aliment by the Instigation of the Appetite, ADULTERY.

ADUSTIO. BURNING. Avicenna, in his Epistle to Harsen, *Theatr. Chym. p. 869*, explains *Adustio* with the usual Obscurity of the Alchymists. *Adustio autem est quando commiscetur, aut aduritur, aut corrumpitur Humiditas substantialis rei*. *Castellus* has taken no Care to render it more intelligible.

ADUSTION, otherwise called SIRTASIS, is an Inflammation of the Parts about the Brain and its Membranes, attended with Hollowness of the Sinciput [Top of the Head] and Eyes, a pale Colour, and Dryness of the Body.

The Remedy is the Yolk of an Egg, with Oil of Roses, laid on the Forehead, in Form of a Liniment, for the Convenience of often changing. *Oribasius Synop. lib. v. cap. 13*.

Apply the Leaves of Turnsole, called *Scorpiurus*, (because it twists its Branches and Flowers like a Scorpion's Tail) to the Forehead; or the Paring of a Gourd, or the Skin that surrounds the Pulp of a Pumpkin, or the Juice of Garden Nightshade, with Oil of Roses. *P. Ægineta, lib. i. cap. 13*.

ADYNAMIA. *Ἀδυναμία*. From *α* Negative, and *δύναμις*, Strength, or Force. Weakness, or Impotence from Sickness. See ADUNATOS.

ADYNAMON. Of the same Derivation as the former. A Sort of factitious Wine, made by putting to two Gallons and a half of Must half as much Water, and boiling it to the Consumption of the Quantity equal to the Water. It is made for sick Persons, for whom pure Wine would be too strong; for it is weak and of no Force, whence it takes its Name. But Dioscorides prescribes an equal Quantity of Wine and Water, to boil till all the Water be boiled away, and when it is cold, to tun it up in a Vessel well pitched. *Gorraeus*.

ADY. The Palm-tree of the Island of St. Thomas. It is a very tall Tree, exceeding even the Pine in Height, with a thick, bare, upright Stem, growing single on its Root, of a thin, light Timber, and full of Juice; its Leaves like those of the cocciferous Palm-tree. Its Head shoots forth into a vast Number of Branches, which being cut off, or an Incision made therein, they hang up a proper Vessel to receive the Tears or Juice that distil from the Wound; and this supplies the Place of Wine among the Indians, and easily intoxicates. It is sweet when new, but sour in a few Days; nor do the rest of the Branches which escape unhurt ever fail of bearing Fruit. The Inhabitants of this Island do not cut the Buds of this Tree, as the Indians do those of the cocciferous Palm-tree.

The intire Fruit is called by the Portuguese, *Caryoceros*, and *Carioffe*; and by the black Natives, *Abanga*. Its outer Rind is yellow, under which is a yellowish Pulp, and after that a hard blackish Stone, which contains a black Kernel, that is good to eat, and peeled of its Skin, is white. The Fruit intire is of the Size and Shape of a Lemon. They eat it roasted, and frequently at their Tables mix the whole raw Kernels with Mandioc Meal. They believe these Kernels to be of wonderful Virtue in restoring Strength to those who pine under a Distemper, and give their Patients three or four of them twice or thrice a Day, to comfort their Hearts. Besides this, they make an Oil out of the Fruit, thus: They take the Pulp off the Stone, and mix it with a good Quantity of very hot Water, and afterwards set it over the Fire to boil a considerable time, carefully stirring it; then it is taken off, and suffered to stand till all the Dregs settle at the Bottom, after which, with a Ladle they take off the Oil that swims on the Water. This done, they repeat the Operation, by adding more hot Water. The Oil is of the Colour of Saffron, concretes with Cold, but is otherwise liquid, eatable, and serves the Inhabitants for the same Purposes that Oil of Olives, or Butter, does the Natives of our Climate; though, to speak the Truth, it is inferior to either of them, both in Smell and Taste.

This Oil is in common Use with the Inhabitants for anointing those Parts of the Body which are stiff and contracted; and they say it is of singular Efficacy in relaxing rigid Tendons. They anoint the whole Body with it also after Exercise and Weariness.

Weariness with Labour. By Exercise, say they, the similar Parts of the Body exhale and are dried up, which ill Effects are prevented by a slight rubbing with this Oil. In short, it is their Acopon, and a noble Remedy, they say, against Lassitudes. *Ray's History of Plants.*

ADYNATOS. Ἀδυνατός. Its Derivation is the same as ADYNAMIA, and ADYNAMON. In Hippocrates it signifies Weak, Feeble, or Impotent, and this Weakness is said to be a very bad Symptom, when it occurs in Diseases, where no Evacuation has happened sufficient to account for it. When it is attended with frequent Stools, Lassitude, Pain in the Head, Thirst, Want of Rest, and the Patient mutters obscurely, so as not to be understood, it is a Sign of an approaching Delirium. *Prædict. l. i. Coac. Prænot.*

AEAZO. Αἰάζω. To lament, complain, exclaim, or groan. *Forf. Castellus, from Hippocrates.*

AEDDES. Ἀἰδῆς. From α Negative, and ἄδδς, Sweet. Unpleasant, Disagreeable. It is sometimes applied to Aliments.

AEDOIA. Αἰδοῖα. From αἰδῶς, Modesty. The same as PUDENDA, by which is meant the Parts subservient to Generation in both Sexes.

ÆGAGROPILA. From αἰγαγρός, the Rupicapra, or Rock-Goat, Chamois, or Gems, and πῖλος, a Ball. Velschius wrote a Treatise on the Virtues of this. It is a little Ball found in the Stomach of Does and Goats in Germany, which some have pretended to be formed by the Doronicum, or Leopards Bane, on which these Animals feed; but it is now certain that it consists only of Hairs, which they swallow; and the like Balls are found in the Stomachs of Cows, Hogs, Boars, &c. and consequently are of no medicinal Virtue; though, from the false Opinion concerning their Original, some have celebrated them in Loosenesses, Hæmorrhages, &c. because of the Plants from whence they conceived them to be formed. They have likewise been recommended in a Vertigo, because the Goats which produce them climb very steep Rocks without being giddy. *Geoffroy.*

ÆGEIRINON. Ἀιγείρινον. From αἰγίριος, a Poplar. An Ointment so called, because the Catkins, or Fruit of the Poplar is one of the principal Ingredients in it. It is made after the following Manner:

In the Spring Season, when the Seeds of the Black Poplar have most Refin about them, bruise them, and put four Ounces of them into a Pint of sweet Oil; let it digest forty Days in the Sun, or boil three Hours in a double Vessel (*a Circulatory I suppose*) and afterwards be strained. *Paulus Aegineta, l. vii. c. 20.*

ÆGEIROS. Ἀιγίρος. The Poplar. Hippocrates recommends nine Grains of the Cretan Poplar to be taken bruised in black Wine, as a Medicine to promote the Expulsion of the Fœtus. Foësius interprets it the Black Poplar. See POPULUS.

ÆGIDES. αἰγίς. A Disorder of the Eyes. It is mentioned by Hippocrates, (*Prædict. l. ii.*) where, in the Opinion of Foësius, it signifies small white Cicatrices in the Eye, caused by an Afflux of corrosive Humours upon the Part. But he interprets the same Word in a different Manner in his Commentary on the Passage where it again occurs (*Coac. Prænot. 218*). Here, he says, it signifies small white Concretions of Humours, which stick upon the Pupil, and obscure the Sight. Callæus blames Foësius for calling one of these Cicatrices or Concretions αἰγίς, which, he says, should be wrote αἰγιάς; but it is not certain that this Correction is right; nor do I see any Reason to think the Word should be taken in different Senses in the two Passages quoted above. Crispinus interprets αἰγιάς a white Membrane or Cicatrix in the Eyes. In Inflammations of the Eyes, where there is a considerable Afflux of Humours to the Part, we frequently observe little white Specks to arise upon the Pupil, which sometimes increase so much as to become a Film. These always disappear spontaneously, as the Inflammation is resolved, and the Humours diverted another Way. But if sharp painful Powders, or Collyria are applied, they are frequently so hardened and fixed, as not to be removed afterwards by any Means whatever.

These seem to be what are meant by Ægides.

ÆGIDION. Αἰγίδιον. From αἰγιάς, or αἰγίς. The Name of a Collyrium described by Aëtius against Defluxions or Inflammations of the Eyes. *Actius.*

ÆGIIOPS. Αἰγιάωψ. The *Cerrus Mas majore Glande* (Park.) is called thus. Gerard mentions it under the Name of *Cerris majore Glande*. HOLME OAK, with GREAT ACORNS.

It is the *Quercus Calyce echinata, Glande majore αἰγιάωψ Idæorum, Aspris Maurorum, Cerrus Latinorum* of Casp. Bauhine. J. Bauh. thinks it the Aspris of Theophrastus.

We saw the Cups of the Acorns of this Tree at Venice, where they are called Vallonia, taking the Name from Apollonia, a City of Dalmatia, now called Vallonia, whence they are brought. They use them for the same Purposes as we do the Bark of Oak, namely, to dress Leather.

The Cup of this Acorn, which was brought from Cape d'Istria by Valerand Dourez, is thus described by J. Bauhine:

Its Cavity was an Inch and a half in Diameter, and somewhat less in Depth. The Cup itself was surrounded with a Multitude of thick stiff Prickles, somewhat resembling the Fragment of a craggy Rock. It was not less than three Inches in Diameter, and was hairy on the Inside; its Scales were broad, and of a white Ash Colour. Whether the Tree was ever described I cannot tell; for those found on the Road from Pesaro to Rome, described by Lobel, I suppose to be the same with those we saw about the Lake of Bolsena; but these Corri had smaller, smoother, and less prickly Caps.

Nor does that seem to be any other, whose Branches were sent to Bauhine by Dalechampius. It had the Leaves of the common Oak, only longer, and more finely and deeply jagged, the upper Face shining, the under of an ash Colour. The Fruit sticks close to the Wood, and the Cups of the Acorns were prickly and thorny, an Inch in Breadth, but the Acorn was not yet ripe, and the Cups were in every Respect like the prickly Cup of the Oak of Burgundy.

The Leaves of the Cerrus observed by us about the Lake of Bolsena in Tuscany were exactly such as Bauhine here describes; but the Cups of the Acorns were different from those of the Cerrus, which are called Vallonia.

The Use of the Cups is to die Woollen Cloth black instead of Galls; but they give a fainter Colour, and not so lasting or valuable. *Ray's History of Plants.*

There are some other Vegetables called by the Name of *Ægilops*, as the

Festuca Avenacea sterilis elatior, C. B. *Bromus herba sive Avena sterilis*, Park. *Bromus sterilis*, Ger. *Ægilops Matthiolo*, J. B. GREAT WILD OAT-GRASS, or DRANK.

The Roots are full of small Fibres, and entangled one with another; the Stalks rise several from one Root, a Cubit high or more, slender and divided by several Joints or Knots, often five, each Stalk bears a Panicle divided many Ways, little Bits of which hanging by long and slender Filaments, and compacted of several husky Substances laid one upon another, put on the Appearance of a small Ear, not much unlike the husky Heads of Oats, with a long soft Beard, sometimes of a purple Colour. The Leaves are of a moderate Breadth, rough and hairy at the Edges. When the Plant turns to Straws, the Root withers.

It grows by Hedges, Paths, and the Sides of Fields, in the Month of May.

The Root boiled in white Wine, and the Decoction drank for some Days together, is commended by Tragus as a singular Remedy for the Worms in Children. *Ray.*

Dioscorides gives the following Account of it:

The *Ægilops* is a small Plant, with Leaves like those of Wheat; but softer, and producing its Seed at the very Top, which are two or three in Number, of a red Colour, and inclosed in bearded Husks.

The Herb applied with Meal, by Way of Cataplasm, cures the *Ægilops*, and dissolves Hardnesses. Meal wet with the Juice, and afterwards dried, is kept for the said Purposes. *Dioscorides, l. iv. c. 139.*

The second Sort of *Ægilops* is the

Festuca longissima aristis, C. B. *Ægilops bromoides*, Tab. Ger. BEARDED WILD OATS.

It shoots forth many small, narrow, oblong Leaves, distinguished by several fine Curls, among which arise three or four slender Stalks, a Foot high, bearing Oaten Ears, with empty Husks, of a spadiceous [bright bay] Colour, and armed with a very long Beard, which proceeding from leafy Husks, leans all on one Side.

We observed this Species more than once in Germany. Tabernamantanus took notice of it between Worms and Frankendale. Its slender Beard is often turned in the Manner of Curls.

The third Sort is the

Ægilops Narbonensis, Lob. *Festuca sive Ægilops Narbonensis*, Park. *Festuca Italica*, Ger. *Gramen Festuca xiv. sive Festuca altera capitulis duris*, C. B. HAYER GRASS.

It has a little white and fibrous Root, which shoots forth some slender Stalks, about a Foot high. It has but few Leaves, and those best resembling the Leaves of Wheat and Barley; but softer and smoother, and hairy round the Edges. At the Top of the Stalk come forth small Ears, proceeding from two or three hard Heads, and consisting of some striated Husks, that contain the Seed, which is like Barley, only somewhat smaller and broader, and three in Number, immediately under the Cover of an inner chaffy Husk. From the Husks, and not from the Seed, comes forth a fine, sharp, oblong, white Beard.

It is very common in Sicily, Italy and Languedoc, and Provence in France, in hot and sandy Soils, and in Fields among Wheat and Barley (*Lob. C. B.*). Cultivated in Gardens, it grows higher and bigger, the Ears consisting of five or six Heads. In Sicily there is a white and a black Species, and the Beard is more raised. *Casf. We observed no such Difference.*

We have, more than once, had Experience of its Virtue against the *Ægilops*; but it was in the Beginning of that Distemper, and before it had made any considerable Progress. It is an Astringent and a Dryer, without much heating. The Seed made into Malt with other Corn, communicates an inebriating Quality to the Beer. *Lob. Ray* 1289, 1290.

An *Ægilops*, or *Anchilops*, is an Abscess in the Canthus of the Eye, next the Nose, containing Pus, which breaking, either corrodes the Bone, or discharges itself at the Canthus, or into the Nose. *Gal. in Isag. vel Medico, c. 15.*

Between the Bone of the Nose and the great Canthus near the Eye, a small Tubercle, like an Abscess, often rises, and usually breaking into the Corner, becomes difficult to cure, if not taken care of. *Gal. de Compos. Med. sec. Loc. l. v. c. 1.*

An *Anchilops* is a Tumor in the great Canthus, containing a Collection of Humours, perforated or not perforated. *Galen. Definit. Med.*

An *Ægilops* is an Abscess near the great Canthus. It is difficult to cure, because the subjacent Bone, from the Thinness of its Substance, is corroded. *Act. lib. vii. cap. 87.*

An *Ægilops* is an Abscess between the great Canthus and the Nose, which, if it breaks, and is neglected, causes a Fistula even to the Bone. Before it breaks and becomes an Ulcer, it is called an *Anchilops*. *P. Aeg. lib. iii. cap. 22.*

An *Ægilops* is a suppurated Tumor between the great Canthus and the Nose. *P. Aeg. lib. vi. cap. 22.*

An *Ægilops* is an Abscess broken between the great Canthus and the Nose. Before it breaks it is called an *Anchilops*; and, if neglected after it breaks, turns to a Fistula, and spreads to the Bone, being then not easy to be cured. *Actuarius, lib. i. de Diagnof. Path. cap. 7.*

In the Corner of the Eye next the Nose, a kind of small Fistula discovers itself, from which a Humour constantly distils. The Greeks call it *Ægilops*, and it is a perpetual Nuisance to the Eye. Sometimes it eats through the Bone into the Nose. Sometimes it turns cancerous, when the Veins appear distended and crooked, the Colour pale, and the Skin hard, and being easily irritated, it raises an Inflammation in the neighbouring Parts. It is a dangerous thing to attempt the Cure of those that are cancerous, because it only hastens Death.

When this Ulcer penetrates into the Nose, all Remedies are in vain, for the Patient will never be cured; but whilst it is confined to the Angle of the Eye, a Cure may be attempted, though even that is difficult; and the nearer the Foramen is to the Corner, the greater will be the Difficulty, because of the very little Room the Hand has to act; but the Work is like to be the easier, whilst the Distemper is recent.

The superior Part of the Orifice must be taken hold of with a Hook, then cut out all that is hollow, as in Fistula's, till you come to the Bone, the Eye and other adjoining Parts being well defended. The Bone is to be well cauterized, and if it be carious, some apply Caustics, that a larger Portion of the Bone may exfoliate, such as Chalcanthum, Chalcitis, or Verdigrease, which last works more slowly and with less Effect than the two former. The Bone, thus cauterized, is to be healed as other Bones are which are treated in the same Manner. *Celsus, lib. vii. cap. 7.*

Ægilops, so called from *αἴξ*, a Goat, and *ὤψ*, an Eye, because People who have this Distemper are said to have a Cast of their Eye, which resembles that of a Goat, and which Virgil alludes to, *Transversa tuentibus Hircis*. Paulus Aegineta has given it the Name of *Anchilops* before it is ulcerated, which Distinction has been observed by later Writers. When the Tumor is burst it is called *Ægilops*. Avicenna calls it *Garab* and *Algarab*.

It is a Tubercle in the inner Canthus of the Eye, and is either scrophulous, atheromatous, or of the Nature of a Meliceris; it is very apt to turn sinuous, and being so, whether it proves callous or not, is however called a *Fistula Lachrymalis*. *Wise-man.*

The Matter contained in this Tumor is so sharp and purulent, that it corrodes not only the Skin, but even the Lachrymal Ducts, the Fat seated near the Sinusses of the Eyes, and sometimes the Bones called *Ossa Plana*, and even the adjacent Bones of the Nose, where it causes frequently a dangerous Caries. Sometimes the inferior and superior Lachrymal Ducts are so totally eroded, that the Tears mixed with Matter continually flow into the Eye, from the Puncta Lachrymalia, and at last cause a true *Fistula Lachrymalis*. But oftentimes Tears only trickle from the Eye, when it is properly enough called Epiphora. *Heister.*

In the Beginning of this Disorder, a Tumor with, and sometimes without Inflammation often appears superficially; and at other times seated so deep, that unless the Part is pressed with the Finger it cannot be perceived. The Matter often makes its Way under the lower Eye-lid, from the Tubercle there ulcerated, where it increases by Degrees, till it runs over with the Tears. *Sennertus.*

We generally find a *Fistula Lachrymalis* joined with the *Ægilops*, which is chiefly owing to its being seated in such a

Manner, that the Tears and Matter cannot pass to the Nose, and so consequently must weaken and extend by Degrees the Lachrymal Bag.

The principal Cause of an *Ægilops* is an Abscess consequent to an Inflammation. I have seen it very often caused by an Ophthalmia, and the Small-pox. *Heister.*

The Causes of an *Ægilops* are the same that produce the like Tumors in other Places; but in some Cases it is made by Fluxion, and appears first as a small Phlegmon. This Disease is frequently a Symptom of the Lues Venerea.

If it is made by Congestion, as in the Atheroma, Steatoma, and Meliceris, the Tubercle is round, without discolouring the Skin; but if by Fluxion, then it appears red, with Pain and Inflammation over the whole Eye. Sometimes it begins only with a weeping of that Corner, and is not discovered till it affects the Eye with Redness, and then, by Pressure with your Finger upon that Canthus, a mixed Matter may be discharged; Part of which is not unlike the White of an Egg. This Matter sometimes eats through the Bone, and discharges itself through the Nose with a foetid Smell. *Wise-man.*

The *Ægilops*, if not taken in time, is difficultly cured.

It is also very troublesome when seated deep; but is worse if it bursts inwardly, because it often corrupts the adjacent Bones.

If the Tumor is not inflammatory, as the Meliceris and Atheroma, the Cure is effected not so much by Medicine, as by Surgery.

If it turns cancerous, it is very dangerous to attempt a Cure, as Death is often hastened by it. *Sennertus.*

If the Ulcer be accompanied with Erosion, it will be apt to terminate cancerous, in which Case the Cure is deplorable. *Wise-man.*

The Indication of Cure is taken from the Condition of the *Ægilops*, whether it is in its beginning with Inflammation, or Congestion, passing its Matter under the Cilium into the Eye.

In the Beginning, Bleeding and Purging are necessary, also such Alteratives as are prescribed in the general Cure of Strumas, (See STRUMA) with Regulation of Diet accordingly.

Externally we apply Repellents to the diseased Part, to prevent Fluxion, of the Waters of Purslane, Lettuce, Plantain, Horse-tail, Nightshade, and Frogs Spawn, with the Whites of Eggs, and Armenian Bole. To intercept the Matter, we apply Gum Mastic, Tacamahac, or the Rupture Plaster, to the Temples, and adjacent Parts.

If the Tumor increase with Tension and Pain, it will be then reasonable to endeavour Discussion, by a Decoction of Wormwood, Elder-flowers, Rue, Lentil and Vetch-meal, either in Wine or Water. If the Tumor tend to suppurate, it must be forwarded with a Cataplasim of white Lilly Roots, Mucilage of Marsh-mallow-Seeds, Linseed, Fœnugreek, Wheat-flower, and Hogs-lard. When the Matter is well concocted, let it be discharged either by Knife, or Caustic. The only Caution is, that it must be opened at such a Distance from the Edge of the Eye-lid, that it may not divide; for in so doing, a remediless Blemish will be left, and the Eye will be subject to Fluxion, and apt to water ever after.

If it is opened by Caustic, it will require the greater Care. I, for the most Part, open them by Incision; then digest them with a Dossil dipt in Oil of Roses, and the Yolk of an Egg, over which I apply Galen's Cerate, or such like, with a Compress dipped in some of the before mentioned distilled Waters, to temperate the Heat in the Part; and afterwards deterge with Honey of Roses, and Syrup of Roses, or with this:

Take of common Honey two Ounces; Verdigrease a Dram; Spirits of Wine four Ounces; boil them till one third Part is consumed.

Then dispose them to cicatrize with this:

Take of yellow Myrobolans one Dram; Frankincense and Myrrh each two Scruples; Tutty one Scruple; Camphire two Grains. Infuse them in Rose-water and white Wine, each four Ounces; then boil to a Consumption of a third Part, and filtre for Use. And afterwards with Ointment of Tutty, and Lime-Water, and with good Compression cicatrize them.

If the Ulcer is fistulous, it becomes a *FISTULA LACHRYMALIS*, which see. *Wise-man.*

As the inflammatory *Ægilops* rather tends to Suppuration than Resolution, it must be brought to Maturation as fast as possible, lest perhaps by Delay it should degenerate into a troublesome Fistula. The Applications proper for this Purpose are emollient Cataplasms, or Plaisters of Diachylon with the Gums. But as soon as Matter is known to be formed, the lower Part of the Tubercle ought immediately to be opened with a Knife or Lancet, and the Matter being pressed out, the Abscess must be carefully deterged with the Oleum Philosophorum, a digestive Ointment, or with Honey of Roses, with a little Myrrh, Egyptianum, or red Precipitate, and then the Ulcer must be healed with some proper Balsam. But if the Abscess breaks of its own Accord, as it often does, and the Aperture

is so small that the Matter cannot discharge itself, it ought immediately to be enlarged with a Piece of prepared Spunge, or Gentian-root, or with the Knife, after which it must be treated as is said above. If the Bone is discovered to be carious, it will be proper to dress it with Lint wet with Spirits of Vitriol, or of Sulphur; or, instead of them, the Powder or Essence of Euphorbium may be used, and over the Dressings a Compress dipped in Lime-Water, or some cooling Liquor must be applied, till the Caries is removed, and the Wound fit for healing. The Caries may sometimes be scraped off with the Rugin. But the actual Cautery applied through a proper Canula forwards the Cure surprisingly; the Ulcer afterwards will be cured by Balsamics. *Heister.*

A young Gentlewoman abounding with acid Serum, was seized with an Inflammation and Tumor in the great Canthus or Angle of her Eye. She had been dressed by some neighbouring Friend till the Inflammation closed up her Eye-lid, and alarmed her by the great Discharge of a mixed serous Matter. I observing the Tumor perfectly suppurated, and the Matter shining under the Cuticula ready to burst through, opened it by the Point of a Lancet, without drawing one Drop of Blood. The Matter discharged, I dressed it with a Dossil dipped in the Yolk of an Egg, with a Plaister of Galen's Cerate, and Cloths dipped in red Wine over all, with convenient Bandage. The next Day I took off the Dressings, and fomented it with a Decoction of the Leaves of Mallows, Violets, Betony, Sage, and red Roses, in Wine and Water, repeating the Dressings as before, and let her blood in the Arm. At the next Day's Dressing, I found the Swelling of her Eye-lid relaxed, and the external Inflammation mitigated, but the Eye itself inflamed. I fomented and dressed the Abscess with a Dossil dipt in Syrup of Roses, applying a Pledgit of Ointment of Tutty over it, with a soft Compress thereupon, leaving the Eye at Liberty to be refreshed with the Air, and to be dressed with Breast Milk as they pleased. To the Forehead Frontlets were applied, to restrain and intercept the Influx. Lenient Purgatives and traumatic Decoctions were prescribed. The Orifice was kept open sufficiently for the Discharge of the Matter, and Convenience of Dressing: Externally refrigerant and exsiccant Medicines were applied, and a few Drops of Tincture of Verdigrase were added to the Syrup, in which I dipped my Dossils. Yet notwithstanding my Endeavours, the Matter having made its Way into the Eye, flowed both Ways in too great a Quantity for some time. Upon which I dressed the Ulcer with a Dossil dipped in Precipitate, and applied over it a Pledgit with Vigo's Ointment of Tutty with Compress and Bandage. After I had thus digested it, I dressed it with a Dossil dipped in Aqua viridis, which I lessened daily, and at last cicatrized it firm. *Wifeman.*

The Bandage is the same as for the Fistula Lachrymalis. See FASCIA.

ÆGIMIUS. A Physician who was the first that wrote a Treatise on the Pulse, as we learn from Galen. His Country was Velia, or Elis. His Age is uncertain. Le Clerc thinks he lived before Hippocrates. Pliny mentions one of this Name who was remarkable for his great Age, *lib. vii. cap. 48*, having lived two hundred Years. As he says nothing more of him, it is not known if he was the same as the above mentioned, or another.

His Treatise on the Pulse was entitled *Περὶ Παλμῶν*, *Of Palpitations*, which was the ancient Word to express the Pulse. Hence Schulzius concludes he must be very ancient, as having lived before the other Words afterwards used by medicinal Writers to express the Pulse were in Use.

Another Argument for the Antiquity of *Ægimius* is drawn from Galen's representing him as the first who wrote on the Subject of Pulse, which cannot be true unless he was prior to Hippocrates, because the last named Author makes frequent Mention of the Pulse.

Schulzius makes a small Mistake in saying the *Ægimius* taken notice of by Pliny was of Velia; for Pliny only mentions his great Age, without specifying his Country.

ÆGINEIA (PAULUS) a Physician of the seventh Century, was so called from *Ægina*, the Place of his Birth, as appears from two Lines prefixed to the first Edition of his Works.

Παύλου πόσιος μὲν γένεσι, τῷ γὰρ τὸ πάλιον
Διαδραμόντι, φησὶ ἐκ γῆς Ἀιγίνης.

This is the Work of Paulus, a Native of Ægina, who had travelled over the greatest Part of the World.

This Circumstance of his Life is the greatest Part of what is known of him; and the Curiosity which the Mention of a Traveller naturally excites, must remain unsatisfied, and we must confine ourselves to an Account of his Works.

That Reputation of every kind is capriciously distributed cannot but be frequently observed; nor is it less usual for Authors, than for Men of every other Class, to be recompensed for their Endeavours in a Manner disproportioned to their

Merit. *Paulus* is, in the Opinion of Dr. Freind, one of those unfortunate Writers who have been long rated below their Value, and been despised for want of being read.

He appears, upon a careful Examination, not to be so implicate a Transcriber as he is generally represented; but to have considered the Practice of the Ancients attentively, and to have admitted or rejected it upon just Consideration. He sometimes dissents from Galen, and once ventures to hint his Disapprobation of the Doctrine established by Hippocrates himself.

In his sixth Book, in which he professedly treats of surgical Operations, and which Freind esteems the best Body of Surgery produced before the Restoration of Learning, there are many Practices and Operations mentioned, which no preceding Author appears to have been acquainted with.

He describes the several Sorts of Hernia's with great Exactness; and very circumstantially lays down the Method of making the Incision, when the Gut cannot be replaced without it.

The Operation of opening the Arteries behind the Ears by a transverse Section, and the Application of a Cautery afterwards are very accurately laid down by him.

He has a very exact Account of Bronchotomy, which is translated by Dr. Freind, and will be given under the Article BRONCHOTOMY.

His Work in seven Books has been several times printed in Greek.

The first Edition is that of Aldus 1528.

The second was published at Basil 1538, by Andreas Cratander, under the Care of Hieronymus Gemusæus, who made some Emendations in the Text, and added some Notes.

It has been translated into Latin by three different Hands, Albanus Torinus, Johannes Gunitarius Andernacus, and Janus Cornarius, to whom the World is obliged for many useful Remarks upon this Author.

The Arabians call this Physician *Bulos Al Agianithi*.

Herbelot says he lived in the time of the Emperor Heraclius, and in the Reign of Omar, the second Chalife of the Musulmans, who died in the Year of the Hegira 23, which answers to the Year of Christ 645. Honani, the Son of Isaac, translated the nine Books of *Paulus Ægineta* into Arabic. I do not know whether he met with two more than are now extant in Greek, or whether these seven were divided in a different Manner, so as to make nine. Fabricius is of Opinion, that the sixth and seventh Book, which are pretty long, were each divided by the Arabian into two.

It is esteemed the peculiar Excellence of this Author to have understood the Disorders to which Women are subject; he acquired the Name of *Al-Kavabeli*, that is, *Obstetricius*, because he used to instruct Midwives in the Duties of their Office, and teach them how to treat Women in Child-bed. *Fabricius. Herbelot.*

ÆGLE. An allegorical Daughter of Æsculapius. Le Clerc thinks by *Ægle* is meant the Light of the Sun, which purifies the Air.

ÆGLIA. Ἀγλία, or Ἀγλίη. According to Gorræus and Castellus the same as αἰγίς, *Ægis*, or αἰγιάς, *Ægiās*. See *ÆGIDES*.

ÆGOCERAS. Ἀγοκέρας. From αἶξ a Goat, and κέρας a Horn. Fœnugreek, so called from the Form of the Siliquæ or Pods which it bears; these were imagined to resemble the Horns of a Goat. *Gorræus.*

ÆGOLETHRON. From αἶξ a Goat, and ὄλεθρος Destruction.

Tournefort describes a Plant by the Name of *Chamaerodendros Pontica, maxima, Mespili folio, flore luteo*, which he takes to be the *Ægolethron* of Pliny, and which he met with in Asia.

It is a Tree which grows higher than a tall Man, with a Trunk about the Size of the Leg. From this arise many Branches, subdivided again into smaller, which are uneven, weak, brittle, white within, and covered with a greyish Bark, naked except at their Extremities, where they are clothed with Tufts of Leaves like the Medlar. These Leaves are about four Inches long, and an Inch broad in the Middle, pointed at both Extremities, but most so at that next the Pedicle, of a lively green, somewhat hairy, and bordered at the Edges with Hairs like the Eye-lids. The Rib of the Leaf is strong, and divided into Nerves which are spread on the Surface. This Rib is only a Continuation of the Pedicle, which is three or four Lines long, and about a Line in Thickness. The Flowers grow at the Extremities of the Branches, eighteen or twenty together in a Tuft, each sustained by a Pedicle about an Inch long, hairy, and springing from the Axæ of certain small, membranous, whitish Leaves, seven or eight Lines long, and as many broad. Every Flower forms a Canal of two Lines and a half Diameter, superficially channelled, hairy and yellow, inclining to red, which, at about an Inch Distance from the Basis, is expanded, and divided into five Parts, one of which is about an Inch long, and as much broad, which bending backwards, like

like the other four, forms a kind of Gothic Arch; the Colour is a pale yellow, but more like Gold about the Middle. The other four Divisions are of the same Colour, but neither so long nor so broad. This Flower is perforated at the Bottom, and at this Perforation articulated with the Pistil, which is pyramidal, channelled, and about two Lines long, of a pale green, somewhat hairy, and terminated with a crooked Filament two Inches long, which ends in a pale green Knob. Round the Perforation of the Flower arise five Stamina, shorter than the Pistil, uneven, bent and furnished with Heads full of a yellowish Dust; the Stamina are of this Colour, hairy from their first Appearance as far as the Middle, and all bent to one Side, like those of the Fraxinella. The Pistil becomes a Fruit of about fifteen Lines long, and six or seven Diameter, and divided into seven or eight Apartments. Mr. Tournefort never saw the Fruit ripe.

The Leaves of this Plant are styptic. The Smell of the Flower is like that of the Honey-suckle, but stronger and intoxicating.

Mr. Tournefort goes on to tell us, that he was so taken with the Beauty of this Flower, that he made a Nosegay of it, which he designed as a present for Numan Cuprogli, at that time Bassa of Erzerum, whom he had the Honour to accompany on the Black Sea; but he was informed by his Chaia that the Smell of it was thought to cause Vapours, and a Vertigo; and was told by the People of the Country, that it was esteemed prejudicial to the Brain.

These People have a Tradition, probably founded on repeated Observations, that the Honey which the Bees get from this Flower, stupifies those who eat it, and inclines them to vomit.

Dioscorides speaks of this Honey in much the same Terms, *lib. ii. cap. 103*. About Heraclea in Pontus, says he, at certain times of the Year, the Honey makes those mad who eat of it, and raises a plentiful Sweat; this Effect is owing to the Flowers from whence they gather it. Those whom it affects are relieved by eating Rue, and salt Meats (*σάρπηδες*), and drinking Wine mixed with Honey, which are to be repeated as often as they are discharged by Vomit. *I suppose he means Honey of a better Kind*. Dioscorides adds, that this Honey is acrid, and makes those sneeze that smell to it. It takes away Freckles, by anointing them with it, mixed with Costus; and with a Proportion of Salt, Pliny says of Aloes, it cures Lividness from Bruises.

To this Pliny adds, that the same Disorders are communicated to Dogs, that eat the Excrements of those who have taken this Honey.

This Plant, and the *Chamaerodendros Pontica, maxima, folio Laurocerasi, flore e cœruleo purpurascēte*, grow about Heraclea in Pontus, now called *Penderaētis*, or *Elegri*, and are found in great Plenty upon the Coast, and in the Woods all the Way to Trebifond and beyond.

The Account which Pliny gives of the Plants from whence the Bees extract this Honey, is more plain than either that of Dioscorides or Aristotle, which last believed that it was gathered from the Box-tree, and that it made those mad who eat of it, if they were well before; and on the contrary, cured those who were mad before they took it. The Passage in Pliny is thus. *lib. xxi. cap. 13*.

About Heraclea, in Pontus, some Years the Honey is extremely pernicious. Authors have not informed us what Plant it is gathered from; what I have discovered of this I shall relate. There is, in those Parts, a Plant called *Ægoletbron*, from its being Poison to Cattle, but particularly to Goats. The Flowers of this, in a moist Spring, acquire a poisonous Quality when they wither. Hence it happens that the Honey is not every Year noxious. That which is poisonous is distinguished by remaining more fluid than the other Honey, and not concreting; the Colour also is more red, the Smell is different from that of good Honey, and causes Sneezing, and it is more ponderous than that which is wholesome. Those who eat of it cast themselves on the Ground, and seek by all Means to cool themselves, because they sweat immoderately.

The Antidote specified by Pliny is the same in Dioscorides. He adds, that Mead prepared with this is innocent when it grows old, and that in the same Country (Pontus) amongst the Sanni, there is another Sort of Honey, which, by reason of the Madness it produces, is called *Mænomenon*. This Effect is said to be owing to the Flower of the Rododendros, with which the Woods abound. And that Country, though it pays Tribute to the Romans in Wax, never sell their Honey, because it is Poison.

From this Passage Mr. Tournefort concludes, with very good Reason, that the *Ægoletbron* is the Species of *Chamaerodendron* I have described above; and that the Rododendros, mentioned by Pliny, is the *Chamaerodendros maxima folio Laurocerasi, flore e cœruleo purpurascēte*, which he says may be called *Rododendros Pontica Plinii*, to distinguish it from the common Rododendros, Oleander, or Rose Bay.

It is certain that the Oleander, or Rose Bay, Rododendros, does not grow on the Coasts of the Euxine Sea, that Climate being

too cold. Very few are to be found beyond the Dardanelis; but they are very common by the Sides of the Rivulets in the Islands of the Archipelago. Hence it is certain that the Rododendros of Pontus, taken notice of by Pliny, cannot be the Oleander, or common Rododendros. Tournefort, in these Quotations, has made some little Mistakes, which I have endeavoured to rectify.

Xenophon relates a very extraordinary Effect of this Honey upon the ten thousand Men, which he commanded, in their Retreat. He tells us when they approached near Trebifond, they found a great Number of Bee-hives, and the Soldiers eat plentifully of the Honey. Upon this they were seized with a Vomiting and Purging, which was succeeded by a Delirium, inasmuch that those who were least affected seemed to be drunk, and the rest either mad or dying. The Camp had the Appearance of a Field of Battle, so many Bodies lying about, which seemed either dead or expiring. However nobody died by it; for the next Day the Disorder ceased about the same time that it began the Day before; so that the third or fourth Day the Men recovered, but remained weak and faint, as if they had taken some strong Medicine.

Diodorus Siculus relates this Story with the same Circumstances. The Father Lamberti, a Missionary, relates, that the Honey which the Bees collect from a certain Shrub in Colchis or Mingrelia, is dangerous and emetic. This Shrub he calls *Oleandro giallo*, yellow Oleander, which Tournefort thinks without dispute the same as the *Chamaerodendros Pontica, Mespili folio, flore luteo*, or *Ægoletbron*. The same Lamberti describes the Smell of this Flower, as betwixt that of Musk and yellow Wax. Tournefort says it is not unlike that of the Honey-suckle, but much stronger. *Memoires de l'Academie Royale des Sciences. 1704*.

ÆGONYCHON. *Ἀργύνηλον*. Dioscorides, *lib. iii. cap. 158*, says the Lithospermon, Gromwell, is sometimes thus called. It is derived from *αἶξ*, a Goat, and *ὄνυξ*, the Hoof. Because of the Solidity and Hardness of the Seed, in the Opinion of Gorræus.

ÆGOPROSOPON. The same as **ÆGIDION**, which see.

ÆGYPTIACUM UNGUENTUM. A Composition that is ascribed originally to Mesue, and has been received by most *Dispensatories* that have been since wrote, without any material Alteration. It is thus given in the *Dispensatory* of our own College.

Take of Verdigrease, or of the green Rust of Brass finely powdered five Parts; of Honey four Parts; of the sharpest Vinegar seven Parts; boil them altogether to a due Consistence, and a dusky red Colour.

The Scum of this Ointment is called *Mel Ægyptiacum*, Egyptian Honey.

The Compilers of the *Edinburgh Dispensatory* seem to have thought this too strong of the Verdigrease, and have lowered it by increasing the Proportion of Honey.

Take of Verdigrease, reduced to fine Powder, five Ounces; of Honey fourteen Ounces; of Vinegar seven Ounces; boil them together over a gentle Fire to the Consistence of an Unguent.

This is an admirable Detergent, and much recommended by chirurgical Writers to keep down fungous Excrecences in Ulcers; but it is too corrosive, especially that of the *London Dispensatory*, except lowered according to the Circumstances of the Case. The Hint of this Composition is taken from Dioscorides, who recommends Verdigrease boiled with Honey for detarging foul Ulcers. And Aetius, *Tetrab. iv. Serm. ii. cap. 3*, prescribes an Ointment very little different from this. See **ABSCESSUS**.

It would perhaps be somewhat difficult to account for the Name of this Ointment, because none of the Ingredients bear any Analogy to *Ægypt*. Aetius however takes notice of an Application made use of by a certain Egyptian in the Cure of an Achor, wherein Verdigrease is a considerable Ingredient: Perhaps the Name may owe its Original to this, which indeed is not an Ointment, but a Plaster. *Tetrab. ii. Serm. ii. cap. 68*.

ÆGYPTION. *Ἀργύνηλον*. Very frequent Mention is made of this in Hippocrates, as a Topic in Uterine Disorders. Galen informs us there were four things which went by this Name. First, the

ÆGYPTIUM OLEUM. *Ἀργύνηλον ἴλαιον*, Egyptian Oil, also called Cicinum, which Dioscorides says was expressed from the Seeds of the *κίκιν*, (Ricinus) or, as we call it, Palma Christi; he represents it as unfit for internal Use (*ἀσχεστόν*) but very proper for Lamps and Plaisters.

Aetius informs us it was prepared in *Ægypt* from the Seeds of the above mentioned Ricinus, which was also called Croton, by Bruising, Expression and Boiling. He recommends it in Leprosies, Foulnesses of the Skin and Freckles, which he says it will take away by continual Use.

The Second was the **ÆGYPTIUM OLEUM ALBUM**, *ἀργύνηλον ἴλαιον λευκόν*, White Egyptian Oil, prepared, according to Galen,

Galen, with Lillies, and called also Cinnamon, or Sufinon Oleum. This is probably the simple Oil of Lillies mentioned by Dioscorides.

third Sort of *Ægypti* oil was the αἰγυπτίον μέρον λευκόν, *Unguentum Ægyptium Album*, white Ægyptian Ointment, called also *Mendesium*, κρινόμυρον, or σέσνον μέρον, and is probably that described thus by Dioscorides.

Take of Oil nine Pounds five Ounces; of Calamus five Pounds and a Quarter; of Myrrh five Ounces; mix them well with sweet-scented Wine, and then boil them. Then strain off the Oil, and, after infusing in it three Pounds and a half of Cardamoms, that have been bruised, and macerated in Rain-water, pour it back. Let them macerate, and then press them. This done, take of this Oil inspissated three Pounds and a half, with Lillies a thousand in Number. Strip these of their Leaves, and put them in a broad but not deep Basin, and pouring the Oil upon them, stir them well with your Hands anointed with Honey. Afterwards let them rest a Day and a Night, and the next Morning remove it into your Sieve and strain it, speedily taking off the Oil that swims upon the Water that was pressed out with it; for this will not bear Water mixed with it, like the Rosaceum; but, if they are heated together, ferment and putrefy. It may be convenient therefore to move it often from one Vessel to another anointed with Honey, first sprinkling a little fine Salt, and taking away carefully the Impurities that gather upon it. After this, take the Residuum out of the Sieve into the Basin, and pour on it an equal Quantity of Oil impregnated with the same Aromatics as before, and cast therein ten Drams of bruised Cardamoms. When you have well stirred it with your Hands, after a short Rest, press it, and remove the Impurities of the Liquor. Pour on Oil the third time, and do as before, adding the Cardamoms and Salt, and working it with your Hands anointed with Honey. The Oil that comes off by the first straining is the best, the second next, and the last in Order is the worst. Then again take a thousand Lillies, and plucking off the Leaves, dispose them as before, and pour upon them the Oil that was first drawn off, and proceed with them in the same Manner as with the first thousand, adding the Cardamoms before straining. This done, pour on the second Oil, and likewise the third, observing a like Process for each as for the first. The oftener you macerate fresh Lillies, the more Virtue and Goodness will there be in your Ointment; but when you think you have done enough, add to every Preparation of the best Myrrh seventy-two Drams, of Saffron ten Drams, of Cinnamon seventy-five Drams; others put an equal Weight of Saffron and Cinnamon. Bruise them and put them in a Basin of Water, and pour thereto the Ointment that was first drawn; a little after pour it into small dry Vessels, first rubbed with Gum, or Myrrh, or Honey and Saffron diluted with Water. Do the same by the second and third Ointment. Some content themselves with a simple Ointment, made of the Oil of the Ben-Nut, or any other Oil, and Lillies.

What is made in Phœnicia and Egypt seems to excel others, and of this the best is that which has the fragrant Smell of the Lillies.

It warms, softens and opens Obstructions of the Womb, and is good in Inflammations of the same Part; and, in general, is very beneficial in Women's Disorders. It also cures scurfy and scald Heads, and soon removes the Blackness from Wounds or Blows, and makes them of the same Colour with the rest of the Skin. Drank, it purges Bile downwards, and provokes Urine; but it is hurtful to the Stomach, and creates a Nausea. *Dioscorides, lib. i. cap. 62.*

The simple Oil of Lillies is probably that described by Paulus Ægineta, *lib. viii. cap. 20.*

The Oil of Lillies he says (which others call Sufinum, perhaps because it was invented at Susa) is made of two Ounces of the dried Leaves of white Lillies put into an Italic Point of Oil, and very closely stopped, so as nothing can transpire, and set to stand three Days in the Sun. Then it is strained, the old Leaves call away, and two Ounces of fresh ones put to the Oil, which is to stand likewise another three Days, and then to be strained and kept up for Use.

The μέρον αἰγυπτίον, *Unguentum Ægyptium*, without the Addition of λευκόν, *Album*, was, according to Galen, made of the Flowers of the Acantha. He says it was called *μυρμιον*.

Paulus Ægineta, *lib. vii. cap. 20.* gives the Composition of the Metopium; but it cannot be the same that Galen means, because the Flowers of the Acantha are not any Part of its Ingredients.

ÆGYPTIUM LINUM. This is mentioned by Hippocrates (*de Morbis, lib. ii.*) speaking of the Cure of a Polypus

in the Nose. He advises to cut a Sponge round like a Ball, of a Size to fit the Nostril, and to involve it in Ægyptian Flax, (λίγν αἰγυπτίω) for it does not seem to mean Thread, but rather a kind of Tow.

ALUTA ÆGYPTIA. αἰγυπτίον σκῦτος. It is named by Hippocrates (*de Fraetis*) and seems to be a soft Leather, like what we use to spread Plaisters upon.

αἰγυπτίη στυπτηρία, Ægyptian Alum. See *ALUMEN*. *ÆGYPTIUM ANDROMACHI EMPLASTRUM.* Aetius, *Tetrab. iv. Serm. iii. cap. 13.* introduces this Plaister with great Encomiums. He says it is famous for uniting the largest Sinusses, for healing Cuts that lay the Bone bare, for Distortions and Luxations of the Limbs and Joints, for Bites inflicted by Men, Quadrupeds, or Reptiles; laid on the Forehead, it stops Defluxions on the Eyes; it heals the largest and deepest Cuts with a Sword in three Days. It has an excellent Virtue for discussing, so as to disperse a Collection of Pus, unless there be a very large Quantity, without Perforation of the Skin. It mollifies and supple the Limbs, though never so stiff and hard, and brings malignant Ulcers to cicatrife. It is thus prepared:

Take of Wax, Litharge, of each one hundred and twenty four Drams; of Gum Ammoniac sixty-two Drams; of Turpentine thirty-two Drams; of greasy Wool, burnt, eighteen Drams; of Birthwort, Frankincense, Squama Æris, each eight Drams; of the Scoria of Steel eight Drams; of Myrrh three Drams; of Opoponax two Drams; of the Oil called Cicinum, or the Sicyonium, or old Oil, three Pounds. Boil the Litharge with the Oil to a Consistence; then adding the Squama, let it boil till it will no longer raise a Spot in your Cloaths. Then add first the Wax, after that the Gum Ammoniac bruised. When these are melted put in the Turpentine, and taking it off the Fire, mix in with it the Frankincense bruised, and the Ashes of the burnt Wool, and work it up with your Hands, and use it sometimes pure, sometimes diluted.

ÆGYPTIUM CROCEUM UNGUENTUM. This is an Ointment described by Aetius, *Tetrab. ii. Serm. iv. Cap. 45.* It takes the Name from *Crocus*, Saffron, that gives it the Colour.

ÆGYPTIUS PESSUS. This Pessary is described by Paulus Ægineta, from Antylus, *lib. vii. cap. 24.* It consists of Honey, Turpentine, Butter, Oil of Roses, or of Lillies, and Saffron; of each equal Parts. If the Vagina is sordid, and not inflamed, the Author says that Verdigrease may be added in a Quantity equal to half that of each of the other Ingredients. From this Addition it probably took the Name.

ÆGYPTIUM PHARMACUM AD AURES. Aetius, *Tetrab. ii. Serm. ii. cap. 83.* speaks of this as excellent for deterring foetid Ulcers of the Ears, which he says it cures, though the Patient was born with them.

Take of bitter Almonds two Drams; of white Pepper two Drams; the Inside of Ægyptian Beans two Drams; of Saffron, Myrrh, Opium, Frankincense, Castor, each two Drams; Omphacium four Drams; Vitriol four Drams; Aphronitrum two Drams. Pound them in Vinegar, in which the Bark of Pomegranates has been boiled, till they come to a Consistence somewhat viscid. Dilute this with Ointment of Nard, and so drop it into the Ears.

ÆGYPTIA ULCERA. Aretæus describes a Species of malignant Ulcer of the Tonsils and Fauces, which he calls Ægyptian or Syrian Ulcers, because very frequent in these Countries. The Passage is in *lib. i. de Causis & Signis Acutorum Morborum, cap. 9.*

Of all Countries, says he, Ægypt is most subject to this Distemper, because of the Dryness of the Air, and the Variety of Food; for the Inhabitants live upon Roots, Herbs, acrid Seeds, and all Sorts of Garden-stuff, and their Drink is the thick Water of the Nile, or a sharp Liquor made of Barley. Syria also is infested with this Disease, especially that Part of it called Cœlosyria; whence they are called Ægyptian or Syrian Ulcers.

They who die of it make a miserable End. The miserable Patients labour under sharp Pains, with a burning Heat, as in a Carbuncle. Respiration is quite depraved, for they breathe forth nothing but the filthy Vapour of the Ulcer, and immediately draw in the same again; and are so troublesome to themselves, as not to endure their own Smell. Their Faces are pale or livid, they have an acute Fever, a Thirst so violent as if they were on Fire, and yet dare not drink for fear of Pain; for they are tormented beyond Measure, if the Drink runs against their Tonsils, or back into their Nostrils. If they lie down they are forced to rise; nor can they bear to sit up, for their Pain obliges them to lie down again. But for the most Part, they choose to walk about; for being incapable of Relief or Ease, they avoid all Rest, and seek to lose the Sense of one Pain by introducing another. They gasp and draw their Breath much inwards, as greedy to be refreshed with the cool Air; but

but breathe forth very little, because the Ulcers, which are as hot as Fire, are still more inflamed by the fervent Breath; a Hoarseness and Loss of the Voice comes on, and these Symptoms increase more and more, till the Patient on a sudden falls to the Ground, and there expires. See TONSILLÆ.

ÆGYPTIA ANTIDOTUS. The Ægyptian Antidote. Many of these are described by Nicolaus Myrepsus, in his first Section, which treats of Antidotes. Their Descriptions are pretty long, and not of sufficient Importance to be inserted here.

ÆICHRYSON. Ἀιχρυσόν. From αἰ, always, and χρυσός, Gold. A Name of the *Sedum majus*. *Gorræus*. See **SEDUM**.

ÆIGLUCES. Ἀιγλυκές. From αἰ, always, and γλυκύς, sweet. A Sort of sweet Wine, that went by that Name, as though it were always Must. It is thus prepared; as soon as the Must is tunned immediately from the Wine-press, they set the Vessels under Water, to stand during Winter, that it may keep always cool; for it is only the Heat of the Must that turns it into Wine.

ÆIPATHEIA. Ἀειπάθεια. From αἰ, always, and πάθος, an Affection or Passion. A never-ceasing Affection or Passion.

ÆITHALES. Ἀιθαλές. From αἰ, always, and θάλλω, to be green. Another Name for the *Sedum majus*.

ÆIZOON. Ἀίζων. From αἰ, always, and ζῶ, Life. *Sempervivum*, *Sedum*, Houseleek. An Herb, of which there are three Species in Dioscorides, the great, the small, and a third, called by the Greeks ἀνδράχνη αγρία, by the Latins *Illecebra*. The great Sort is described as having a Stalk above a Cubit high, as big as a Man's Thumb, fat, green with Incisions after the Manner of the *Laetaria vallis*, called χαράκις τιθύμαλος, Wood Spurge, with fat carnosus Leaves, of the Size of a Man's Thumb, like a Tongue at the Top, some turning their convex Sides toward the Ground; others standing at the Head, and so compacted together all around, as to represent the Figure of an Eye, whence it is called ζωφθαλμός, and βυφθαλμός. The small *Sempervivum* has many Stalks sprouting from one Root, with slender, round, fat, sharp-pointed Leaves. The middle Stalk rises a Span high, bearing an Umbella, with a small herbaceous Flower. The two first Kinds of Houseleek are cooling, and are also moderately drying and astringent. The third Kind has a small, thick, hairy Leaf, most like Purslane. It is of a heating, acrimonious, exulcerating Nature. *Gorræus*.

ÆLIANUS MECCIUS. A Physician that lived in the time of the Emperor Adrian. We learn from Galen that he wrote well on the Dissection of the Muscles. It is also said he was one of Galen's Masters, by whom he is recorded to have been a Physician of Abilities, and a very worthy Man.

ÆLIUS PROMOTUS. There seems to have been two of this Name, one a Disciple of Ostanes the Persian. This *Ælius* accompanied Xerxes into Greece.

The second was a Physician of Alexandria, who lived in the time of Pompey. He wrote a Treatise περὶ ἰοφθίμων καὶ δηλητηρίων φαρμάκων, of Poisons, and deleterious Medicines. Gesner and Tiraquellus say this Work is preserved in some of the Italian Libraries in Manuscript; Mercurialis and Fabricius say in the Vatican.

ÆMILIUS MACER. A Poet of Verona, who lived in the Reign of Augustus. He was Contemporary with, and somewhat older than Ovid, who speaks of him thus:

*Sæpe suas volucres legit mihi grandior ævo
Quæque nocet serpens, quæ juvat herba, Macer.*

From hence we learn he wrote on Birds, Serpents and Plants; but Mr. Le Clerc is of Opinion he only gave an Account of such Vegetables as were Antidotes to those Poisons as he speaks of. Servius says the same Author wrote a Poem on Bees.

It is on Account of his Poem on Birds, Serpents and Herbs that he is numbered amongst the medicinal Authors. His Works are lost; those which go under his Name being, in the Opinion of all the learned, supposititious, and are said to be wrote by one Odobonus.

ÆOLIPYLÆ. **ÆOLIPILÆ.** I do not know that this Word has any Right to a Place in a Medicinal Dictionary, it properly belonging to experimental Philosophy. However, as Castellus has taken notice of it, I would not omit it. *Æolipiles* are Vessels made either of Iron or Brass, with a small Orifice; into these Water is put, and when they are placed in a hot Fire, the Water, rarefied into Vapour, bursts out with a great Noise and Force, imitating Wind.

ÆON. Ἄϊον. The whole Age of a Man, from his Birth to his Death properly, but used frequently by Hippocrates to signify the Remainder of a Man's Life.

It also signifies the spinal Marrow, and it is said should be wrote at the latter End of the seventh Book of the *Epidemics* instead of κινῶνα. The Passage will then run thus, ὁ τὸν αἰῶνα φθίνσας ἑβδομήκιον ἀπέθανεν, A certain Person being ill of a *Tuberculosis*, died the seventh Day. *Erotian*. *Foellius*. *Hesychius*. *Varinus*.

ÆONION. Ἀϊώνιον. The *Sedum majus*, or greater Houseleek is by some called thus. *Gorræus*.

ÆONESIS. Ἀϊόνσις. From αἰνῶ, perfundo, irriego, to pour upon, or to wet by pouring a Fluid upon. It signifies a moistening the external Parts by Perfusion, or Fomentation. *Erotian*. *Foef*.

ÆORA. Ἀϊώρα. From αἰωρῶ, to lift up, suspend, or hang on high. Gestation, a Species of Exercise used by the Ancients, of which Aetius gives the following Account. *Tetrab. i. Scrm. iii. cap. 6*.

Other Kinds of Exercise, says he, consist in Motion of the Body; but Gestation is compounded of Motion, and such a Disposition as much resembles Rest, in which most Parts of the Body seem to lie still, while the whole is carried along the Way in which the Gestation is directed. Hence it appears that Gestation is at once the most beneficial and most gentle Kind of Exercise, since it procures no Lassitude, and yet moves the Body after the manner of great Exercises.

All Gestation has the Virtue of exciting and ventilating the innate Heat, of dispersing the redundant Humours, of strengthening the Habit, and raising the dull and languid Powers.

There are many different Species of Gestation, some of which, in particular, are those which follow: A Gestation may be performed in a Bed, either made pensile (perhaps like the modern Hammocks) or moveable on the Fulcra, or Feet which support it. A second Way of Gestation is in a Litter, which is also two-fold, that is, when the Person carried either sits or lies along. A third Way is in a Chariot, and a fourth in a Ship or Boat. Riding also may be accounted a Species of Gestation.

Gestation in a Bed is convenient for feverish Persons, and such as have lain sick a long time, who cannot well raise their weak and wasted Bodies. It is also proper for those who begin to recover Strength after a Fever, and for such as have taken Hellebore; it is good likewise in a Phrensy, for it gently composes the Perturbation of the Spirits, and inclines to Sleep. Lethargies also, and Loss of Appetite, are relieved by it.

Gestation in a Litter is proper for such as labour under a lethargic, or semitertian, or quotidian Fever; and hydropical Persons; such as are seized with a Stupor, the Remains of an Apoplexy, or Palsy; and for those who are afflicted with the Gout or Stone. Persons under a perfect Intermission of a Fever are carried this Way in a sitting Posture.

As for Gestation in a Chariot, there is something shaking in it, which works upon chronic Distempers; but of this Kind some are more gentle and easy, others rougher and more vehement. The first, or softer, is to be used in Distempers of the Head, and Fluxes of the Intestines; the latter, or more violent, is proper for Infirmities of the Breast or Stomach, for lax Tumors, hydropical Persons, and such as are seized with a Stupor. But vertiginous Persons, and such as have half their Head affected should sit backwards, and move gently. We have known many cured this Way, who needed no other Help; but then their Seat must be so contrived, as that they may sit in a pretty supine Posture.

Lastly, Gestation in a Boat or Ship, if near Land, and on a calm Sea, is proper for such as have a Dropsy, or Elephantiasis, such as are swelled, or struck with a sudden Palsy. This Gestation at first turns the Stomach, but soon grows familiar and agreeable. But Gestation upon the Sea is most violent, and causes many and great Changes, as it must happen where the Mind is distracted betwixt Hope and Sorrow, Fear and Danger, and the Ship's Crew sometimes exulting with Joy and Alacrity, at other times sunk into Despair. All these things put together are of Force sufficient to drive any old Distemper out of the Body, and exclude it for ever, not to mention that a Mixture of Rest and Motion, if any thing can do it, nourishes the Body.

ÆPOS. Ἀΐπος. It signifies in Hippocrates a steep Place, or rising Ground, of somewhat difficult Ascent.

ÆQUALIS. **EQUAL.** This, in a medicinal Sense, is applied to any thing that is consistent with itself, and always the same, or that is the same in all its Parts. In this last Sense, Pus or Matter is said to be equal, or of an equal Consistence, when it has no Admixture of Ichor or Sanies, but is all alike.

A Temperament or Constitution is said to be equal, which is not subject to Alteration or Excesses, but is always the same.

A Pulse is called equal that keeps the same Tenor, without any Variation with respect to the time and manner of the Contraction and Dilatation of the Artery.

Urine is called equal, when it always preserves the same Appearance in regard to its Colour, Consistence, and Contents, so that what is made at one time shall be exactly the same as that made at any other time; and the Hypostasis or Sediment in Urine is said to be equal, when it is the same in every Part, and seems homogeneous.

A Disease is called equal, when it perseveres without any Variation in the Symptoms and Circumstances that attend it. The Greeks express this by ἰσμελές. Hence Medicines that re-

duce to the Equality above mentioned are called *Æquantia* by some Authors, amongst which Castellus quotes Jul. Cæs. Claudinus.

ÆQUILIBRIUM. The general Signification of this Word is too well understood to want Explanation. In a medicinal Sense it is used to express a just Proportion betwixt the Solids and Fluids of the Body, which is necessary to the Performance of the animal Functions, and a perfect State of Health.

ÆQUINOCTIUM. The Equinox, of which there are two, the Vernal and Autumnal. Physicians have taken notice of these Equinoxes, as productive of certain Disorders. Thus *Ægineta*, from *Diocles*, *lib. i. cap. 100.* says the Vernal Equinox increases Phlegm and sweet Scrofulities in the Blood, till the rising of the Pleiades, which is six and forty Days. Therefore we are to feed on aromatic and acrid Aliments, and to use much Exercise. The Autumnal Equinox increases Phlegm, and thin Defluxions, till the Fall of the Pleiades, which is six and forty Days. During this Season we are to stop Defluxions by the Use of highly aromatic and acrid Food, to avoid Emetics, to use much Exercise, and abstain from Venery.

The Autumnal Equinox is placed about the twenty-fourth Day of September by *Paulus Ægineta*, *lib. vii. cap. 11.*

The Vernal Equinox is placed by *Aetius* on the twenty-third of March, and the Autumnal on the twenty-fifth of September. *Aetius Tetrab. i. Serm. iii. cap. 167.* See AER.

ÆQUIPOLLENS. Equal with respect to Strength. It has been used to express an Equality of Force in the antagonist Muscles, which move the same Part in different Directions.

AER. *Æg.* The AIR. What is meant by this Word is so commonly known, that it would be superfluous to attempt to define it. Physicians in all Ages have esteemed the Air as the grand Instrument in producing all Changes that happen in natural Bodies, and of great Importance both in producing and curing Distempers, and in destroying and preserving Health. In Medicine it is numbered amongst the Non-naturals, and is more immediately necessary to animal and vegetable Life, than even Nutrition.

Hippocrates, in his Treatise *de Flatibus*, gives his Sentiments with respect to the Air. He says the Bodies of Men and all other Animals are nourished by three things, which are called Meat, Drink, and Spirits (*πνεύματα*); these, when within the Body, are called Wind or Flatulencies (*φύσαι*), but out of the Body, Air. As this Air bears a great Part in whatever happens in the Universe, the Force thereof is a Subject considerable enough to deserve Examination. The Wind is nothing but a Flux, or Effusion of Air. When therefore there is a great deal of Air, it makes a Stream or Flux strong enough to tear up Trees by the Roots, and to raise Waves in the Sea capable of elevating Ships of immense Burden to a prodigious Height, such is its Force. Notwithstanding this, it is invisible, however manifest to the Understanding by the Effects. What is there transacted in the Universe without Air? What Body is without it? Or where is it not present? All the Space betwixt the Heavens and the Earth is filled with Air (*πνεύματος*). By this Winter and Summer are caused; in the Winter it is condensed and cold, in the Summer mild and calm. The Sun, Moon and Stars perform their Courses by the Assistance of the Air; for the Air is the Nourishment of Fire, inasmuch that Fire deprived of Air cannot subsist; the Air being itself perennial and thin, furnishes the Sun with the means of continuing its perennial Course.

That the Sea also participates of Air is manifest; for how could Sea Animals live without it? And how could they participate of it, unless they drew it through the Water, or out of the Water itself. The Air is the Support of the Moon, and the Chariot of the Earth, and nothing in Nature is void of it. The Air therefore of all things has the greatest Influence, as has been said above.

The Air is the Support of the Life of Mortals, and the Cause of those Diseases to which Mankind is subject. And so necessary is the Air to our Bodies, that though a Man may live two or three Days or more without Meat or Drink; yet if the Passage of the Air into the Body is intercepted for a very small Part of a Day, it is certain Destruction, so absolute is the Necessity for it. Men sometimes rest from all other Actions, for Life is full of Changes, Respiration alone is perpetual in all Animals, who are perpetually employed either in Expiration or Inspiration.

I have said that there is a great Communion betwixt all Animals and the Air; I now proceed to shew that it is not probable that Diseases can be caused by any thing but the Air, as it is received into the Body either in Quantities too small or too large, if it is either too much condensed, or infected with Contagion.

I have quoted this Passage with a View, first to shew that Hippocrates had taken notice of the general Influence of the Air on Animal Bodies, which will appear more abundantly in his Treatise of *Air, Water and Climates*. Secondly, as an Instance of the Precariousness of Theory in Physic, since this great Man, whose Penetration enabled him to observe the Changes which happen

in Diseases, and describe them with the greatest Accuracy, and also to accommodate Methods of Cure to Distempers, perhaps the very best that could possibly be contrived, with the Materials Mankind had, in his Days, arrived to a Knowledge of, could not however avoid running into Puerilities and Error, when he attempted to reason about things which were not the Subjects of his Senses, and consequently out of his Reach.

That great Poet and Philosopher Virgil has been somewhat more fortunate in his Account of the Effects of the Air on Animal Bodies, inasmuch that he seems to have been acquainted with some of its Properties demonstrated since by means of the Air-Pump, and by other Experiments, which will be related under this Article.

After having given an Account of the Prognostics of the Weather, from the Changes produced in the Brute Creation, he goes on to give the Reason for it thus:

*Haud equidem credo, quia sit divinitus illis
Ingenium, aut rerum fato prudentia major:
Verum ubi tempestas, & cæli mobilis humor
Mutavere vias, & Jupiter humidus Austris
Densat erant quæ rara modo, & quæ densa relaxat,
Vertuntur species animorum, & pectora motus
Nunc alios, alios dum nubila ventus agebat
Concipiunt: hinc ille avium concentus in agris,
Et lætæ pecudes, & ovantes gutture corvi.*

Upon the Whole, it will appear by the Quotations I shall give from different Authors, that the ancient Physicians were perfectly sensible of the Importance of the Air, both with regard to the Preservation of Health, and Cure of Diseases; and that they took more care than is usual amongst us, not only to correct the noxious Qualities which the Air may contract at particular Times and Seasons, and prevent the ill Effects thereof, but also to render it medicinal, and of Assistance in the Cure of Diseases.

The very Air that surrounds us is continually perverting our Temperament, while it changes to hot or dry, or cold or moist, beyond a just Degree. As to other Causes, we are not all at once obnoxious to them, nor meet with them every Day; but the Air that presses on our Bodies is circumfused around us all, and is drawn into us by Respiration. Hence the Bodies of Animals must of necessity have their Temperament affected, according to the various Alterations it undergoes. Sometimes the ambient Air acquiring an Excess of Heat and Moisture induces a pestilential Constitution, and because the Humours of the Body, which are bred of unwholesome Food, are subject to putrefy, a Foundation is laid for a pestilential Fever. *Aetius Tetr. ii. Serm. i. c. 94.*

Oribasius, in his medicinal Collections, *lib. ix. cap. 1.* transcribes from *Galen* the following Passages relating to the Air.

The best Air is that which is the purest, not charged with moist and heavy Vapours from any standing Pools or Marshes, nor infected with unwholesome Damps and Exhalations from some neighbouring Caverns, like that of Sardes and Hierapolis. Air that has contracted ill Qualities from the common Shores belonging to some great City or Army, or from the Stench of putrefied Carcasses or rotten Dung of Vegetables, must needs be bad, and stands condemned. So likewise is that which is dense and foggy from some neighbouring Lake or River, or confined on every Side with high Mountains, and never stirred or ventilated by the Winds; for this last Sort corrupts and suffocates, being like the Air in Houses that are uninhabited and shut up, which contract much Filth and Mouldiness for want of airing. All these Kinds of Air are hurtful to all Ages, as, on the contrary, a pure Air is universally agreeable. Those Differences of the Air, which are in regard to Heat or Cold, Dryness or Moisture, do not affect all Persons alike. To Bodies that are in the best Temperament the best temper'd Air is most agreeable; but for such as transgress in some prevailing Quality, that Air is to be chosen which exceeds in the contrary. Thus Heat counterbalances Cold, and Dryness Moisture, when too great a Measure of one is compensated by an equal Excess in the other.

Alexander Trallianus, speaking of the House in which an *hætical Patient* is to be lodged, We are not only, says he, to give the sick Person all the Means of Refrigeration that can outwardly be applied; but we should study, by some artificial Method, to change the Air, by producing in it a cooling Quality, that may be serviceable to our Design. If therefore it be Summer, let the Sick lie in a subterraneous Room, and let the Floor be plentifully sprinkled with cold Water, to cool the Air. Let Water also fall from one Vessel into another, which, besides the forementioned Benefit, by its moderate and equable Murmur induces Sleep. It would be yet better, and more for our Purpose, if we could so change the Air, as that it might not only refrigerate, but corroborate the Body. And this may be, in a great Measure, effected by strewing the Floor with Roses, Houseleek, Brambles, Twigs of the Lentisk-tree, or Vine.

Vine-tendrils, or something of like Tendency, which has a strengthening as well as cooling Virtue. An Air thus tempered must certainly be good for all heſtical Perſons, but eſpecially for thoſe who feel their Heart and Lungs principally affected with a burning Heat, like Fire; for ſuch Patients do not find ſo much Relief from a refrigerating Diet, as from the Inſpiration of the cool Air; as, on the contrary, they who have their Liver, Belly, or any other Part, moſt ſenſibly diſordered, receive more Benefit from Choice of Food than Change of Air. In ſhort then, while the Summer holds, we are to alter the Air by Refrigeration; but in Winter we are not to induce a Warmth therein, becauſe however cold it be, it never hurts the Perſons we are ſpeaking of. The Body, for the ſame Reason, muſt be moderately cloathed, and not heated with a Multitude of Garments, which may cauſe a Faintneſs. *lib. xii. cap. 4.*

Paulus Ægineta, for ſuch as have taken too violent Purges, advises, among other things, that they may be kept from Air that exceeds a moderate Degree in Cold or Heat. The firſt, ſays he, drives the Matter from the outer Parts inwards, and augments the Flux; the other diſſolves the Body, and deſtroys the Strength. *lib. vii. cap. 7.*

The ſame Author, after ſpeaking of the Alterations made on the Bodies of Animals by the Changes of the Air, in the ſame Terms as Aetius, before quoted, thus goes on: He who knows theſe things will not only be able to foretel what Diſtempers will naturally happen from every Conſtitution; but will find out Methods to prevent them, by inſtituting a Regimen quite oppoſite to the preſent prevailing Intemperies of the Air. Whatever Bodies then are ſubject, from their proper Temperament, to fall into any Diſeaſe, are eaſily affected and hurt by a concurring Diſpoſition of the Air; but ſuch as are of a Temperament contrary to that of the Air, not only receive no Injury, but find themſelves better; the Meaſure of their Exceſs in one Quality compenſating for that of the Air in the contrary. A wiſe Man, therefore, who underſtands theſe Things, will preſerve his Health by oppoſing Contraries to one another, ſometimes uſing refrigerant, ſometimes heating Medicines, as need ſhall require.

To ſerve the firſt Intention, or Refrigeration, he makes frequent Uſe of Water, indulges Reſt, eats little, and drinks plentifully; but when he has Occaſion to acquire a contrary Quality, he knows by warm Cloathing, much Exerciſe, full Eating, and ſober Drinking, to heat his Conſtitution as much as ſhall be requiſite. A cold and moiſt Air may, in a good Meaſure, be remedied, and converted into the oppoſite Qualities of hot and dry, by making large Fires, which Acron the Agri-gentine is ſaid to have done, in order to deſtroy the peſtilential Infection in the Air. *lib. ii. c. 35.*

This Chapter on Air is taken from Galen, and repeats verbatim what is before quoted from Oribafius, as far as that Paſſage which condemns Air that is pent up between high Mountains, and then goes on thus: The Air on high Mountains, and in hilly Countries, when no Wind ſtirs, is more wholeſome, and good for aſthmatic and conſumptive People, and all Indiſpoſitions of the Head and Breſt. But the Air of low Regions, which is pure, is beſt for old People, and ſuch as are ſubject to Faintings. The Sea Air is beneficial in hydropical and watery Diſtempers, eſpecially ſuch as have a cold Cauſe; for Nerves affected by Conſent of Parts, and Proſtration of Appetite. The Air of rocky Places is not good; for in the Winter it is too cold, and in Summer fultry hot. Air filled with the Exhalations of Metals is bad; the Air of a clayey Soil relaxes the Stomach; but what comes from a light yellow Earth, is more drying than the former; the beſt exhales from a black Loam.

The Air alſo changes according to the Seaſons of the Year. In the Spring it is hot and moiſt, in the Summer hot and dry, in Autumn cold and dry, and in the Winter cold and moiſt. Again, there are three Differences in each Seaſon, the firſt, middle, and laſt; of theſe the middle bears the trueſt Characteriſtic or Temperament proper to that time; for the Extremes participate of the adjoining Seaſons. Moreover the Moon cauſes four Changes in the Air every Revolution. The firſt Septenary, or Quarter, which is reckoned from the new Moon to the ſeventh Day incluſively, is, like the Spring, hot and moiſt. The ſecond Septenary, which holds to the full Moon, is like the Summer. The third, the Moon now decreaſing, reſembles the Autumn; and the laſt, the Winter. Yet farther, every Day has its Differences of Air; for the Morning is hot and moiſt like the Spring, in which the Bodies both of ſick and ſound Perſons are relaxed, ſo that even feveriſh Patients find it the moſt tolerable Part of the Day. The Middle of the Day may be compared to Summer, the Twilight to Autumn, and the Evening to Winter. And laſtly, to conclude, the firſt Part of the Night is likened to the Spring, the Middle to Summer, and the reſt according to Order.

By Air is underſtood that Fluid, which is ſcarcely to be perceived by our Senſes, but which maniſeſts itſelf by its Reſiſtance to Bodies moved in it, and by its ſtrong Motion againſt other

Bodies, when it is called Wind; and by this Reſiſtance and Motion of the Air, we know it is incumbent every where upon the Surface of our Earth. We all live in it, we enjoy it, and are perpetually kept alive by it. The Laws of our Exiſtence, and inevitable Neceſſity oblige us to inſpire and expire this Air, be it what it will; inſomuch that all the Aſſiſtances of Art are vain, and all that is done for us in the common Courſe of Nature is fruitleſs, if we are deprived of the Benefit of the Air.

If we examine into the Manner in which Nature operates according to the Laws which the great Creator has ordained, we ſhall plainly diſcover, that this Air is the grand, efficacious, and neceſſary Inſtrument which Nature univerſally employs in almoſt all the Operations ſhe is perpetually engaged in. For in this, Bodies of all Kinds are placed; in this they move, and in this they perform all their Actions, as well thoſe which proceed from their private and particular Natures, as thoſe which depend on their Relation to other Bodies. There is ſcarcely any Liquid, as appears by Experiments, which has not Air intermixed with it; ſcarcely any Solid, out of which Air may not be extracted by Art. So that it is ſcarce poſſible to ſpecify any Operation of Nature, which happens without the Aſſiſtance of Air, or utterly excluſive of it. The Operations of Fire, the Loadſtone, Gravity, and the particular Attraction and Repulſion of Corpuſcles, may perhaps be alone excepted, as capable of being performed without it; to all others it is abſolutely neceſſary. Whatever is performed in Chymiſtry is done in the Air, without any Exception, unleſs, perhaps, as the Alchymiſts will have it, that the Matter of the Philoſophers Stone, rightly prepared, and carefully locked up in the Philoſophical Egg, is intirely deprived of all crude Air, and is brought to its Maturity in *vacuo*; for they all are of Opinion, that nothing is ſo great an Obſtacle to the Maturation of this beautiful Fruit as the crude Air: But this is to be underſtood of other Particles that are intermixed with the Air, rather than of the pure Element itſelf.

It is very certain, that Fire which puts all things in Motion, can neither be collected, preſerved, directed, increaſed, or moderated without Air. Hence, then, if Air is neceſſary to Fire, Air is alſo neceſſary to every Operation of Fire; ſo that without it Fire would ceaſe to operate, nor could it be applied to other Bodies. The Fire here meant is that which is excited and ſupported by inflammable Fuel, by the Means of which both Art and Nature execute their principal Purpoſes.

Whoever has Leiſure and Inclination to take a View of the more general Claſſes of natural Bodies, will find, that Air is every where required to their Vitality, Growth, Vigour and Action; for if their Lives conſiſt in the Circulation of Humours through proper Veſſels, and by a peculiar Power converting the extraneous Juices they receive into their own Nature, or at leaſt by a ſingular Virtue applying them to their Subſtance, and thus increaſing in their Magnitude, it ſeems utterly impoſſible that one of theſe Functions can be performed without the perpetual Aſſiſtance of Air.

The Chymiſts, I am ſenſible, will be ſurpriſed, when they hear the Air named as concerned in the Ÿconomy of Foſſils, ſince the great Simplicity of the Matter of which they are formed ſeems to require Fire alone, in order to be capable both of acting and undergoing whatever is brought about in this Species of Bodies; but certainly thoſe who have duly conſidered the Nature of things, have long ago underſtood that Foſſils are brought forth and multiplied in the deepeſt Recesses of the Mines, and are thence protruded upwards, and that all this is accompliſhed by the great Force of a ſubterraneous Fire. And as this is certain, ſo likewiſe it muſt be allowed, that this ſubterraneous, veſtal, and perpetual Fire is there retained, collected and applied by the Air alone. This it will be proper to ſet in a true Light, as it is a Point which has not been clearly treated any where elſe. Air then is a heavy, elatiſc Fluid, denſe in proportion to the Weights that compreſs it; acts more powerfully upon the ſame Fire, in Proportion to its acquired Denſity; expands itſelf in the ſame Ratio, as it is freed from Compreſſion; rareſies proportionably to the Intenſeneſs of the Fire that acts upon it; and inſinuates itſelf into all things, and exerts chiefly all its Properties in thoſe Parts which are deep, and towards the Center of the Earth. Hence, therefore, it always operates the more violently, the deeper and denſer it is; and being agitated by the Fire, which by this very Attrition of the Air is collected there in greater Quantity, becomes the phyſical Cauſe of the moſt violent Compreſſion, Attrition, Compaction, Depuration, and Union of homogeneous Particles; and hence the Foſſils which are generated there, are of a Nature ſuitable to ſuch a Cauſe. Without Air none of theſe would be produced; and perhaps this is the ſole Reaſon why they are only formed in thoſe Places.

What Boerhaave ſays here about ſubterraneous Fires, and the Production of Metals by Means of the Air, ſeems to want Proof.

Nor will it be any ways neceſſary to explain the Power of Air upon Animals and Plants; for ſome late very accurate Experi-

ments have fully taught us, that no Eggs of Animals, or Seeds of Plants, be they ever so ripe, pregnant, and the best of the Kind, and cherished with ever so kindly a Warmth, will ever bring forth the Embryo's contained in them, but will remain intirely unactive, if they are either deprived of Air, or are inclosed in stagnating Air in Glasses hermetically sealed. All small Plants likewise, even the most minute Mosses, or aquatic Vegetables, when they are kept in a Place void of Air, or when it is not renewed, presently wither and die. That the same also happens to all Animals, even to the smallest Insect, is true, beyond all Contradiction.

An accurate Knowledge, therefore, of the Air, by which its actuating Properties may be understood, is absolutely necessary for the Chymist, Physician, and Natural Philosopher; for by this means alone we shall be able to comprehend a great many Operations which are performed by Art or Nature itself, their principal Cause very often being some innate Power of the Air, that exists nowhere else.

Mean time, there is not, perhaps, any natural Body, the perfect Knowledge of which it is more difficult to arrive at, because, of itself, it scarcely affects the Organs of our Senses. This one may justly attribute to its exceeding Subtlety, to which the Dulness of our Nerves renders us insensible; inasmuch, as even by the Assistance of the most perfect Microscopes, we are not able to discover any thing in it. But there is yet somewhat else in the Air, which is still a greater Obstacle to our rightly understanding its Nature; and that is, its containing so many various Kinds of Corpuscles, that in the whole Universe there is not found a Fluid compounded of a greater Variety.

It is highly necessary therefore, first of all, to consider distinctly every single Property of the Air, carefully avoiding all Confusion. This done, and each being separately examined with due Application, it remains, by making an Aggregate of the whole, that we obtain as true a Knowledge of it as the Nature of the Thing will permit.

The first Property then of Air, which offers itself to our Consideration, is its Fluidity. This is so natural to it, that there is no Experiment the Event of which proves that Air could be deprived of it. It is evident to every one's Observation, that even in the sharpest Frost, when every thing, almost, is congealed, the Air still remains liquid; even in an artificial Cold, forty Degrees greater than ever Nature has been observed to produce, the Air still retained its Fluidity, notwithstanding it was acted upon by such a prodigious Excess of Cold. If you compress the Air with ever so great Weight and Force, into the utmost Density, yet it does not then become solid by Concretion, but remains equally fluid as before; and as soon as ever the Compression is removed, it resumes its former Degree of Liquidity. Among the many Experiments I have made with respect to the Coagulations of various Liquors, I have never yet met with one single Experiment, by which it appeared that Air was coagulated into a solid Mass. I must own, that once about Noon, in a frosty Day, when the Air was very serene, I observed some very small Corpuscles floating about in it, glittering in the Sun, and, by the Reflection from their little Surfaces, sparkling with extraordinary Coruscations; but after a careful Examination, I discovered that these were nothing but little Globules of Water, which before were dispersed in the Air, but were now united and congealed, and thus appeared in Form of a very subtil Hoar-frost. If therefore Fire can concrete with other Bodies, Air certainly appears to retain its Fluidity much more obstinately than Fire itself. But, indeed, it rather seems probable, that there are in Nature two Fluids, the Elements of which will never unite with each other, nor will ever harden with any other Bodies into one homogeneous Mass: And these two are Air and Fire. In the mean time, however, I have not forgot, that the Air concretes together, and unites with every kind of known Bodies, and serves as a kind of Element in their Composition: For this is sufficiently evident from the large Quantity of Air which spontaneously makes its Way out of almost every Body, whilst it is reducing into its Principles; and this is now usually, though perhaps not altogether properly, called salutious Air. The Fact upon Examination appears to be thus: It is contained in all known Liquors whatsoever; it penetrates together with them into all the Recesses of compound Bodies; thus at last, after a Coalition of the whole, it remains locked up in the Pores of Bodies, as it were, in very minute Vessels; and afterwards, the Liquor in which it was conveyed thither being dissipated, it is left there alone. Hence then it is evident, that this Air was not concreted there, but only lay concealed, being retained by the including Body. As soon as ever, therefore, it can disengage itself from this Confinement, it rushes forth not in the least changed, and returns with Velocity to its proper Nature. But this still appears in a stronger Light, if we consider common Water, whilst freezing. There is concealed in it a great Quantity of invisible Air: As soon then as ever the Water begins to form itself into Ice, and its Particles are pressed nearer, and united together, as they are now deprived of that Degree of Fire which is necessary to keep

them asunder, and prevent their running into their natural Union, the Particles of Air, detained between the Corpuscles of Water, cannot congeal, but are pressed out of these Interstices, where being united with other Particles, they are collected in Bubbles, and become again a most fluid Air; thus evidently evincing, that this Air was in reality intercepted, but not concreted, coagulated, or altered. The same Thing being supposed in the like Manner in all other Bodies, the Fluidity of Air is sufficiently demonstrated.

The extreme Smallness of every individual Particle of Air contributes greatly to its Fluidity; for they are so exceeding minute, that no one of them can be represented to the Eye by any Microscope whatever. And yet they are far larger than those of Fire; for they can neither make their Way through Metals, Glass, Stone, or thick Wood, nor even through strong Paper. And hence, Air may be excluded from any Place. It cannot so much as pass through those invisible Pores of Bodies, through which Wine, Oils, Water, Brine, Lixivia, and acid Spirits, are able to insinuate themselves. These Observations are all evidently confirmed by the Air-pump: For if a leathern Ring is placed on the Brass Plate which supports the Receiver out of which the Air is exhausted, and the Receiver is set on the said Ring, then the Weight of the Atmosphere, when the Air is exhausted from the Cavity of the Receiver, will press the Edge of the Receiver with so much Force upon the Ring of Leather, that the external Air will not pass into the Cavity through the Duets of the porous Leather, but will be intirely kept out; and yet, if you pour any one of the before mentioned Liquors upon the Outside of the Leather, it will be immediately imbibed, and it will soon insinuate itself under the Glass into the Vacuum; a manifest Proof, that other Fluids, though somewhat thick and tenacious, can easily pass through the Pores of Bodies that repel and keep out the Air. And the same Thing is also demonstrated by an infinite Number of other Experiments.

In the next Place, these ultimate aerial Particles are easily separated from one another, insomuch, that their Disunion may be procured by a Force so small, that it scarcely comes under the Observation of our Senses. And this Separability of the Air is such, that it does not alter the Case, whatever is the Direction of the Body that divides it, whether upwards, downwards, or sideways. This easy Divisibility every one may observe, who considers the Motion of a small polished Body through the still Air. Thus a Steel Needle moves with great Facility in the circumambient Air, which Way soever you please; and it is the same with all other Bodies. This properly, therefore, may be called the Lubricity of the Air.

However, upon a critical Examination, we discover some Tendency towards a Union between the Particles of the Air; by means of which they readily run together into a mutual Association, though a very slight one, and which may easily be destroyed: For it appears, that whenever one single Particle of Air lies concealed in any Liquid, it is not perceived; but as soon as ever a like Particle is united with it, there presently arises a Bubble from this Union, which by a certain Tenacity resists Dissipation; and if afterwards another, and another like Bubble meets with the former, there succeeds, in Proportion, a still greater Bubble, tenacious, as the former, of its Magnitude and spherical Figure. It may, perhaps, be thought, that this is rather owing to the Compressure of the ambient Liquid; nor do I deny that it may possibly happen by that means: But yet, the Effort at least of the aerial Particles towards an Union with one another will be still greater than that between the Particles of Water and the very minute Particles of Air. The Attraction, however, between these Particles, I acknowledge to be very small. It may, perhaps, be said, these Particles repel each other, as the great Newton has demonstrated; and this is not to be denied. However, it remains certain, that there is a Power in these Particles, by which, when they are united in a spherical Figure, they long maintain themselves in that Form, against the Force of Bodies that surround them.

If we examine this Inclination to Cohesion more closely, we shall soon perceive, that the aerial Particles, singly and separately considered, very easily suffer themselves to be mixed with any other Liquid void of Air; and that they obstinately abide in it, quietly resting in its Interstices, in the same Manner as any Salts are dissolved in Water. Besides, it appears, that a large aerial Bubble, that is composed of many united Particles of Air, and placed on the Surface of a Liquor intirely deprived of it, will resolve into its elementary Particles; and that these, when they are thus separated, will be carried into the empty Pores of the Liquid, and never gather themselves into a Bubble again, unless by the additional Force of a stronger Cause.

And hence the Imperceptibility of the Air to our Senses may be understood; for nobody would ever have thought of this Air which we now treat of, had not some large Bodies, and principally such as contain but a small Quantity of Matter under a large Surface, been moved broadways through it. In this Case, the Air resisting the Motion with a remarkable repulsive Force, immediately

immediately manifests itself to be a hard Body. And as these Resistances, which are in reality actual Repulses, increase according to the augmented Velocities with which the Bodies are moved, or, as the Mathematicians compute, in a duplicate Proportion, hence it may happen that this imperceptible Softness of the fluid Air may become as hard as a Stone: For if one should take a very thin Brass Plate, an hundred Feet square, and attempt to move it directly forwards, erect through the Air when it was calm, with so great a Velocity that it should move through a Space of two and twenty Feet in a Second, he would then find in this Air an incredible Resistance or Hardness, easily to be computed by Mariotte's Method. And if with this Plate, erect and quiescent, any one should receive the Shock of a Wind, rushing with the greatest Rapidity, he would then likewise experience with what Hardness the Air is capable of striking, when it is moved with such Velocity.

This is to be understood of the whole Air as a Compound, in which very large and heavy Bodies are capable of floating, as appears by the Instances of Birds and Things of some Weight carried away by the Wind; not to mention those of a light Nature, as Dust, &c.

The next Property of Air, considered in the same Manner as before, is the particular Weight of its whole Bulk; for in this Respect all the Parts together, which in the Aggregate constitute this Air, press with such a Force towards the Center of the Earth, that by their Fluidity they form a Sphere around its Surface, which may properly enough be called the Atmosphere, and which, on account of the large Quantity of exhaling Vapours contained in it, has hitherto, by Philosophers, been called the Atmosphere.

The great Tuscan Geometrician Torricellius, in the Year 1643, attempted to ascertain the Weight of the Air. After him the famous Otto Guericke proved this Gravity by several sensible Experiments. That subtle Philosopher, Monsieur Pascal, afterwards cleared it farther up; and the great Mr. Boyle rendered it more compleat. It was Mariotte, however, who gave the finishing Stroke to it, by the most curious Experiments of all, insomuch, that now no Part of Natural Philosophy stands upon surer Principles than this of the Gravity of the Air; for by the Assistance of what these Gentlemen have done, the Weight of the whole gravitating Atmosphere may be obtained to the greatest Nicety, and expressed under the Denomination of common Weights.

It has hitherto, however, remained impossible to determine the exact comparative Weight of the Body of Air; it appearing that no two equal Portions of Air, taken at the same time, but at different Heights, were ever of equal Weight; but that, on the contrary, the lower Air always outweighed the higher. And this holds so universally true, that the very same Thing is observed from the Surface of the Earth to the Tops of the highest Mountains; and in the very same Place, at different Times, the specific Gravity of the Air will be different.

The Atmosphere in our Climate, where-ever it has hitherto been observed, is very considerably, and almost always wonderfully changing with respect to its Weight, which never continues long the same. This Variation is chiefly apparent whenever there is any Alteration in the Meteors in the Air, which is very frequent: For Rain, sudden great Showers, Fogs, Hail, Snow, Lightning, Thunder, Winds from various Quarters, Storms, Whirlwinds, Drought, and the Changes of the planetary Aspects, are certain Indications of the Atmosphere's becoming very soon of a new or different Weight. In this Affair the different Seasons of the Year likewise produce an incredible Variation. By means, therefore, of this successive and incessant Mutability, depending on such a Number of Causes which are continually reviving, it comes to pass that the Weight of the Atmosphere never continues long the same. And hence an infinite Number of Effects about the Earth, which almost all depend upon the Action of the gravitating Air, are in a perpetual Vicissitude and Inconstancy: So that this single Mutability of the Air, in point of Weight, is the Source of a great many Causes which produce different Events. In the mean time however, by the help of very accurate Observations, continued for the Space of above eighty-six Years, we are now come to the Knowledge of the greatest and least Gravity of Air that happens in Europe: For, upon Examination, it has been found, that the greatest Weight of the Atmosphere is *in equilibrio* with thirty Inches and a half of Quicksilver in the Barometer, but that the least would raise it only to twenty-seven and a half; so that the Difference appears to be almost a tenth Part of its greatest Weight, within which Compass the perpetual Variation of the Gravitation of the Atmosphere is included.

This daily Alteration depends on many particular, and perfectly different Causes; but yet, however, such as are intirely certain, and may be come at by diligent Observations. And whenever this shall be accomplished, then we shall be able to form a regular Judgment of this Fluctuation, which at present is looked upon as uncertain. Nicholas Kruquius, whose Genius, Learning, and indefatigable Industry, highly qualify him for the Cultivation of these Studies, and whose Meteorological Tables,

composed with infinite Diligence and Accuracy, shew us at one View all the Causes contributing to every Degree of the increased Weight of the Atmosphere, has given Reason to expect farther Discoveries. It were to be wished that the Inquiries of this great Master in Natural Knowledge might meet with Encouragement equal to their Author's Merit; lest, when he is gone, we should look in vain for another that is equally qualified for making Discoveries of this Nature.

Lastly, It has been likewise observed, that the Weight of the common Air, about our Earth, at the time of the middle Weight of the Atmosphere, and in the most temperate Season of the Year, is to that of Water as 1 to 850: But this must be understood with the Conditions mentioned above, otherwise nothing certain can be affirmed about it.

The Air resting with its whole Weight upon our Earth, presses its Surface perpetually. And this Pressure upon any particular Body is equal to a Force which would sustain a perpendicular Column of Mercury to the Height it then stands at in the Barometer; the Base of which Column will be a horizontal Plane, cutting a Pyramid, whose Apex is in the Center of the Earth, whilst its Sides touch the horizontal Limits of the Body thus pressed by the Air. Thus then may this Power be every where exactly computed, by considering the Height of the Quicksilver in the Barometer at the time the Computation is made, and the Magnitude of the Surface of the Body pressed upon. And hence it is inferred, in the second Place, that Bodies placed on the Earth are so much the more pressed by the incumbent Air, the nearer they are to its Center; for it is evidently demonstrated in Hydrostatics, that the Pressures of Liquids upon their Bases are in Proportion to their perpendicular Altitudes. Hence, therefore, if we consider the Air as a Liquid, every where homogeneous and incompressible, then the Proportion in which Bodies are compressed in every Part of the Perpendicular, from the Surface of the Earth to its Center, might be easily discovered: But as the elastic Power of the Air induces a great many very different Considerations, it will be necessary to treat of its Effects particularly. Mean time, it appears, on the other hand, that all Bodies, the farther they are raised above the Center of the Earth, the less in Proportion they are affected by the Pressure of the Air. But it must be farther observed, that Bodies in the very same Situation will be more closely compressed together, as the Weight of the Air is augmented, according to the above mentioned Observations. And, again, as soon as ever the same Air decreases in its Weight, the Pressure upon these Bodies will be proportionably diminished. Moreover, all those Bodies that are exposed to the Air are never long compressed with the same external Force, but the Compression they suffer is varying continually; with this Limitation however, that the Difference of the Pressure is never found in the same Place to exceed one tenth of the whole: Therefore, the Air itself, while by resting on all Bodies it thus compresses them with various Forces, must likewise in Proportion be repressed by them, provided they are elastic, or such as have in them an innate Effort to expand themselves, or to recover that Size which is natural to them. Hence it appears, that in all Bodies, which are situated in the Air, there is a perpetual Oscillation of their Particles, corresponding to the reciprocal Augmentation or Diminution of the Weight of the Air. This Oscillation is but small indeed, as being confined within the Limits above specified, for the Compass of its Variation; but still it is a proper Oscillation, and is almost continual. This Alteration, joined with the perpetual Change brought about with respect to the Bulk of Bodies by the Actions of Heat and Cold, must have very considerable Effects. We acknowledge, therefore, two perpetual Causes of the constant, internal Motion of all the Particles of elastic Bodies; which are Fire, and the Atmosphere. However, it must be remarked, that upon Bodies which are absolutely soft, if any there are intirely destitute of a Power to recover their former Figure, when the Force that presses them is removed; and upon Bodies, such as Water, which cannot by any external Weights be reduced into a smaller Space; upon such, I say, the compressive Force of the Atmosphere, with regard to its Increase or Diminution, has no Effect; and, consequently, upon such Bodies the reciprocal Oscillation we have mentioned will be of no Efficacy. Seeing then that Fire acts equally, and even more upon these very Bodies than on all others, it plainly appears, that the Power of Fire, on this Account, is to be regarded as far more universal than that of Air, and consequently of any other Body.

It will now be of Service to us, if, with a View to Chymistry, we take notice of those Effects which the external Air produces, considered as a Fluid and gravitating Body together; for in this Light it evidently appears, that it must rest with some Force upon the outward Surfaces of all Bodies, as has been explained above. Hence therefore, in the first Place, it will insinuate itself between the Surfaces of all Bodies, the Distances of which, from one another, leave Interstices wide enough to admit the external Air, which, by its Subtlety, or the loose Texture of its Parts, may be able to enter into these void Spaces. Hence, also, it is evident, that all the little invisible Pores